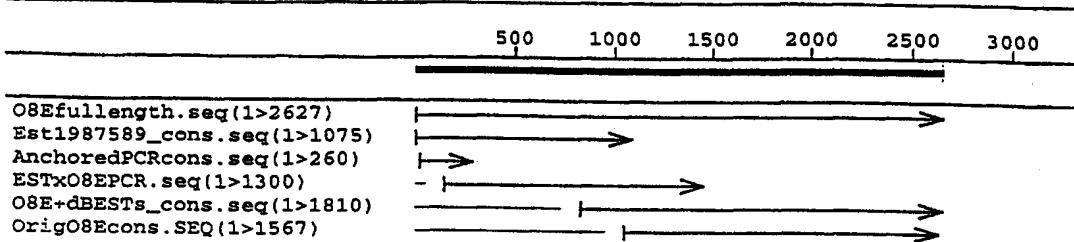




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(54) Title: COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER



(57) Abstract

Compositions and methods for the therapy and diagnosis of cancer, such as ovarian cancer, are disclosed. Compositions may comprise one or more ovarian carcinoma proteins, immunogenic portions thereof, polynucleotides that encode such portions or antibodies or immune system cells specific for such proteins. Such compositions may be used, for example, for the prevention and treatment of diseases such as ovarian cancer. Methods are further provided for identifying tumor antigens that are secreted from ovarian carcinomas and/or other tumors. Polypeptides and polynucleotides as provided herein may further be used for the diagnosis and monitoring of ovarian cancer.

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COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER

TECHNICAL FIELD

The present invention relates generally to ovarian cancer therapy. The 5 invention is more specifically related to polypeptides comprising at least a portion of an ovarian carcinoma protein, and to polynucleotides encoding such polypeptides, as well as antibodies and immune system cells that specifically recognize such polypeptides. Such polypeptides, polynucleotides, antibodies and cells may be used in vaccines and pharmaceutical compositions for treatment of ovarian cancer.

10 BACKGROUND OF THE INVENTION

Ovarian cancer is a significant health problem for women in the United States and throughout the world. Although advances have been made in detection and therapy of this cancer, no vaccine or other universally successful method for prevention or treatment is currently available. Management of the disease currently relies on a 15 combination of early diagnosis and aggressive treatment, which may include one or more of a variety of treatments such as surgery, radiotherapy, chemotherapy and hormone therapy. The course of treatment for a particular cancer is often selected based on a variety of prognostic parameters, including an analysis of specific tumor markers. However, the use of established markers often leads to a result that is difficult to 20 interpret, and high mortality continues to be observed in many cancer patients.

Immunotherapies have the potential to substantially improve cancer treatment and survival. Such therapies may involve the generation or enhancement of an immune response to an ovarian carcinoma antigen. However, to date, relatively few ovarian carcinoma antigens are known and the generation of an immune response against such antigens has not been shown to be therapeutically beneficial. 25

Accordingly, there is a need in the art for improved methods for identifying ovarian tumor antigens and for using such antigens in the therapy of ovarian cancer. The present invention fulfills these needs and further provides other related advantages.

SUMMARY OF THE INVENTION

Briefly stated, this invention provides compositions and methods for the therapy of cancer, such as ovarian cancer. In one aspect, the present invention provides polypeptides comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished. Within certain embodiments, the ovarian carcinoma protein comprises a sequence that is encoded by a polynucleotide sequence selected from the group consisting of SEQ ID NOs:1-81, 313-331, 359, 366, 10 379, 385-387, 391 and complements of such polynucleotides.

The present invention further provides polynucleotides that encode a polypeptide as described above or a portion thereof, expression vectors comprising such polynucleotides and host cells transformed or transfected with such expression vectors.

Within other aspects, the present invention provides pharmaceutical compositions and vaccines. Pharmaceutical compositions may comprise a physiologically acceptable carrier or excipient in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide. Vaccines may comprise a non-specific immune response enhancer in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a

polynucleotide that comprises a sequence recited in any one of SEQ ID NOS:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an anti-idiotypic antibody that is specifically bound by an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide.

The present invention further provides, in other aspects, fusion proteins that comprise at least one polypeptide as described above, as well as polynucleotides encoding such fusion proteins.

Within related aspects, pharmaceutical compositions comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a physiologically acceptable carrier are provided.

Vaccines are further provided, within other aspects, comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a non-specific immune response enhancer.

Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient a pharmaceutical composition or vaccine as recited above.

The present invention further provides, within other aspects, methods for stimulating and/or expanding T cells, comprising contacting T cells with (a) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOS:1-387 or 391; (b) a polynucleotide encoding such a polypeptide and/or (c) an antigen presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells. Such polypeptide, polynucleotide and/or antigen presenting cell(s) may be present within a pharmaceutical composition or vaccine, for use in stimulating and/or expanding T cells in a mammal.

Within other aspects, the present invention provides methods for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared as described above.

Within further aspects, the present invention provides methods for inhibiting the development of ovarian cancer in a patient, comprising the steps of: (a) incubating CD4⁺ and/or CD8⁺ T cells isolated from a patient with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOS: 1-387 or 391; (ii) a polynucleotide encoding such a polypeptide; or (iii) an antigen-presenting cell that expresses such a polypeptide; such that T cells proliferate; and (b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of ovarian cancer in the patient. The proliferated cells may be cloned prior to administration to the patient.

The present invention also provides, within other aspects, methods for identifying secreted tumor antigens. Such methods comprise the steps of: (a) implanting tumor cells in an immunodeficient mammal; (b) obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum; (c) immunizing an immunocompetent mammal with the serum; (d) obtaining antiserum from the immunocompetent mammal; and (e) screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor antigen. A preferred method for identifying a secreted ovarian carcinoma antigen comprises the steps of: (a) implanting ovarian carcinoma cells in a SCID mouse; (b) obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum; (c) immunizing an immunocompetent mouse with the serum; (d) obtaining antiserum from the immunocompetent mouse; and (e) screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

These and other aspects of the present invention will become apparent upon reference to the following detailed description and attached drawings. All references disclosed herein are hereby incorporated by reference in their entirety as if each was incorporated individually.

5 BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A-1S (SEQ ID NOs:1-71) depict partial sequences of polynucleotides encoding representative secreted ovarian carcinoma antigens.

- Figures 2A-2C depict full insert sequences for three of the clones of Figure 1. Figure 2A shows the sequence designated O7E (11731; SEQ ID NO:72),
10 Figure 2B shows the sequence designated O9E (11785; SEQ ID NO:73) and Figure 2C shows the sequence designated O8E (13695; SEQ ID NO:74).

Figure 3 presents results of microarray expression analysis of the ovarian carcinoma sequence designated O8E.

- Figure 4 presents a partial sequence of a polynucleotide (designated 3g; SEQ ID NO:75) encoding an ovarian carcinoma sequence that is a splice fusion between the human T-cell leukemia virus type I oncoprotein TAX and osteonectin.
15

Figure 5 presents the ovarian carcinoma polynucleotide designated 3f (SEQ ID NO:76).

- Figure 6 presents the ovarian carcinoma polynucleotide designated 6b (SEQ ID NO:77).
20

Figures 7A and 7B present the ovarian carcinoma polynucleotides designated 8e (SEQ ID NO:78) and 8h (SEQ ID NO:79).

- Figure 8 presents the ovarian carcinoma polynucleotide designated 12c (SEQ ID NO:80).
25

Figure 9 presents the ovarian carcinoma polynucleotide designated 12h (SEQ ID NO:81).

Figure 10 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 3f.

- Figure 11 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 6b.
30

Figure 12 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 8e.

Figure 13 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12c.

5 Figure 14 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12h.

Figures 15A-15EEE depict partial sequences of additional polynucleotides encoding representative secreted ovarian carcinoma antigens (SEQ ID NOs:82-310).

10 Figure 16 is a diagram illustrating the location of various partial O8E sequences within the full length sequence.

DETAILED DESCRIPTION OF THE INVENTION

As noted above, the present invention is generally directed to compositions and methods for the therapy of cancer, such as ovarian cancer. The 15 compositions described herein may include immunogenic polypeptides, polynucleotides encoding such polypeptides, binding agents such as antibodies that bind to a polypeptide, antigen presenting cells (APCs) and/or immune system cells (*e.g.*, T cells).

Polypeptides of the present invention generally comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof. Certain 20 ovarian carcinoma proteins have been identified using an immunoassay technique, and are referred to herein as ovarian carcinoma antigens. An "ovarian carcinoma antigen" is a protein that is expressed by ovarian tumor cells (preferably human cells) at a level that is at least two fold higher than the level in normal ovarian cells. Certain ovarian carcinoma antigens react detectably (within an immunoassay, such as an ELISA or 25 Western blot) with antisera generated against serum from an immunodeficient animal implanted with a human ovarian tumor. Such ovarian carcinoma antigens are shed or secreted from an ovarian tumor into the sera of the immunodeficient animal. Accordingly, certain ovarian carcinoma antigens provided herein are secreted antigens. Certain nucleic acid sequences of the subject invention generally comprise a DNA or

RNA sequence that encodes all or a portion of such a polypeptide, or that is complementary to such a sequence.

- The present invention further provides ovarian carcinoma sequences that are identified using techniques to evaluate altered expression within an ovarian tumor.
- 5 Such sequences may be polynucleotide or protein sequences. Ovarian carcinoma sequences are generally expressed in an ovarian tumor at a level that is at least two fold, and preferably at least five fold, greater than the level of expression in normal ovarian tissue, as determined using a representative assay provided herein. Certain partial ovarian carcinoma polynucleotide sequences are presented herein. Proteins encoded by
10 genes comprising such polynucleotide sequences (or complements thereof) are also considered ovarian carcinoma proteins.

Antibodies are generally immune system proteins, or antigen-binding fragments thereof, that are capable of binding to at least a portion of an ovarian carcinoma polypeptide as described herein. T cells that may be employed within the
15 compositions provided herein are generally T cells (*e.g.*, CD4⁺ and/or CD8⁺) that are specific for such a polypeptide. Certain methods described herein further employ antigen-presenting cells (such as dendritic cells or macrophages) that express an ovarian carcinoma polypeptide as provided herein.

20 OVARIAN CARCINOMA POLYNUCLEOTIDES

Any polynucleotide that encodes an ovarian carcinoma protein or a portion or other variant thereof as described herein is encompassed by the present invention. Preferred polynucleotides comprise at least 15 consecutive nucleotides, preferably at least 30 consecutive nucleotides, and more preferably at least 45
25 consecutive nucleotides, that encode a portion of an ovarian carcinoma protein. More preferably, a polynucleotide encodes an immunogenic portion of an ovarian carcinoma protein, such as an ovarian carcinoma antigen. Polynucleotides complementary to any such sequences are also encompassed by the present invention. Polynucleotides may be single-stranded (coding or antisense) or double-stranded, and may be DNA (genomic,
30 cDNA or synthetic) or RNA molecules. Additional coding or non-coding sequences may, but need not, be present within a polynucleotide of the present invention, and a

polynucleotide may, but need not, be linked to other molecules and/or support materials.

Polynucleotides may comprise a native sequence (*i.e.*, an endogenous sequence that encodes an ovarian carcinoma protein or a portion thereof) or may 5 comprise a variant of such a sequence. Polynucleotide variants may contain one or more substitutions, additions, deletions and/or insertions such that the immunogenicity of the encoded polypeptide is not diminished, relative to a native ovarian carcinoma protein. The effect on the immunogenicity of the encoded polypeptide may generally be assessed as described herein. Variants preferably exhibit at least about 70% identity, 10 more preferably at least about 80% identity and most preferably at least about 90% identity to a polynucleotide sequence that encodes a native ovarian carcinoma protein or a portion thereof.

The percent identity for two polynucleotide or polypeptide sequences may be readily determined by comparing sequences using computer algorithms well 15 known to those of ordinary skill in the art, such as Megalign, using default parameters. Comparisons between two sequences are typically performed by comparing the sequences over a comparison window to identify and compare local regions of sequence similarity. A “comparison window” as used herein, refers to a segment of at least about 20 contiguous positions, usually 30 to about 75, or 40 to about 50, in which a sequence 20 may be compared to a reference sequence of the same number of contiguous positions after the two sequences are optimally aligned. Optimal alignment of sequences for comparison may be conducted, for example, using the Megalign program in the Lasergene suite of bioinformatics software (DNASTAR, Inc., Madison, WI), using default parameters. Preferably, the percentage of sequence identity is determined by 25 comparing two optimally aligned sequences over a window of comparison of at least 20 positions, wherein the portion of the polynucleotide or polypeptide sequence in the window may comprise additions or deletions (*i.e.*, gaps) of 20 % or less, usually 5 to 15 %, or 10 to 12%, relative to the reference sequence (which does not contain additions or deletions). The percent identity may be calculated by determining the number of 30 positions at which the identical nucleic acid bases or amino acid residue occurs in both sequences to yield the number of matched positions, dividing the number of matched

positions by the total number of positions in the reference sequence (*i.e.*, the window size) and multiplying the results by 100 to yield the percentage of sequence identity.

Variants may also, or alternatively, be substantially homologous to a native gene, or a portion or complement thereof. Such polynucleotide variants are
5 capable of hybridizing under moderately stringent conditions to a naturally occurring DNA sequence encoding a native ovarian carcinoma protein (or a complementary sequence). Suitable moderately stringent conditions include prewashing in a solution of 5 X SSC, 0.5% SDS, 1.0 mM EDTA (pH 8.0); hybridizing at 50°C-65°C, 5 X SSC, overnight; followed by washing twice at 65°C for 20 minutes with each of 2X, 0.5X and
10 0.2X SSC containing 0.1% SDS.

It will be appreciated by those of ordinary skill in the art that, as a result of the degeneracy of the genetic code, there are many nucleotide sequences that encode a polypeptide as described herein. Some of these polynucleotides bear minimal homology to the nucleotide sequence of any native gene. Nonetheless, polynucleotides
15 that vary due to differences in codon usage are specifically contemplated by the present invention. Further, alleles of the genes comprising the polynucleotide sequences provided herein are within the scope of the present invention. Alleles are endogenous genes that are altered as a result of one or more mutations, such as deletions, additions and/or substitutions of nucleotides. The resulting mRNA and protein may, but need
20 not, have an altered structure or function. Alleles may be identified using standard techniques (such as hybridization, amplification and/or database sequence comparison).

Polynucleotides may be prepared using any of a variety of techniques. For example, an ovarian carcinoma polynucleotide may be identified, as described in more detail below, by screening a late passage ovarian tumor expression library with
25 antisera generated against sera of immunocompetent mice after injection of such mice with sera from SCID mice implanted with late passage ovarian tumors. Ovarian carcinoma polynucleotides may also be identified using any of a variety of techniques designed to evaluate differential gene expression. Alternatively, polynucleotides may be amplified from cDNA prepared from ovarian tumor cells. Such polynucleotides may
30 be amplified via polymerase chain reaction (PCR). For this approach, sequence-specific

primers may be designed based on the sequences provided herein, and may be purchased or synthesized.

- An amplified portion may be used to isolate a full length gene from a suitable library (*e.g.*, an ovarian carcinoma cDNA library) using well known techniques.
- 5 Within such techniques, a library (cDNA or genomic) is screened using one or more polynucleotide probes or primers suitable for amplification. Preferably, a library is size-selected to include larger molecules. Random primed libraries may also be preferred for identifying 5' and upstream regions of genes. Genomic libraries are preferred for obtaining introns and extending 5' sequences.
- 10 For hybridization techniques, a partial sequence may be labeled (*e.g.*, by nick-translation or end-labeling with ^{32}P) using well known techniques. A bacterial or bacteriophage library is then screened by hybridizing filters containing denatured bacterial colonies (or lawns containing phage plaques) with the labeled probe (*see* Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY, 1989). Hybridizing colonies or plaques are selected and expanded, and the DNA is isolated for further analysis. cDNA clones may be analyzed to determine the amount of additional sequence by, for example, PCR using a primer from the partial sequence and a primer from the vector. Restriction maps and partial sequences may be generated to identify one or more overlapping clones. The 20 complete sequence may then be determined using standard techniques, which may involve generating a series of deletion clones. The resulting overlapping sequences are then assembled into a single contiguous sequence. A full length cDNA molecule can be generated by ligating suitable fragments, using well known techniques.
- Alternatively, there are numerous amplification techniques for obtaining 25 a full length coding sequence from a partial cDNA sequence. Within such techniques, amplification is generally performed via PCR. Any of a variety of commercially available kits may be used to perform the amplification step. Primers may be designed using, for example, software well known in the art. Primers are preferably 22-30 nucleotides in length, have a GC content of at least 50% and anneal to the target 30 sequence at temperatures of about 68°C to 72°C. The amplified region may be

sequenced as described above, and overlapping sequences assembled into a contiguous sequence.

One such amplification technique is inverse PCR (*see* Triglia et al., *Nucl. Acids Res.* 16:8186, 1988), which uses restriction enzymes to generate a fragment in the known region of the gene. The fragment is then circularized by intramolecular ligation and used as a template for PCR with divergent primers derived from the known region. Within an alternative approach, sequences adjacent to a partial sequence may be retrieved by amplification with a primer to a linker sequence and a primer specific to a known region. The amplified sequences are typically subjected to a second round of amplification with the same linker primer and a second primer specific to the known region. A variation on this procedure, which employs two primers that initiate extension in opposite directions from the known sequence, is described in WO 96/38591. Additional techniques include capture PCR (Lagerstrom et al., *PCR Methods Applic.* 1:111-19, 1991) and walking PCR (Parker et al., *Nucl. Acids. Res.* 19:3055-60, 1991). Other methods employing amplification may also be employed to obtain a full length cDNA sequence.

In certain instances, it is possible to obtain a full length cDNA sequence by analysis of sequences provided in an expressed sequence tag (EST) database, such as that available from GenBank. Searches for overlapping ESTs may generally be performed using well known programs (*e.g.*, NCBI BLAST searches), and such ESTs may be used to generate a contiguous full length sequence.

Certain nucleic acid sequences of cDNA molecules encoding portions of ovarian carcinoma antigens are provided in Figures 1A-1S (SEQ ID NOS:1 to 71) and Figures 15A to 15EEE (SEQ ID NOs:82 to 310). The sequences provided in Figures 1A-1S appear to be novel. For sequences in Figures 15A-15EEE, database searches revealed matches having substantial identity. These polynucleotides were isolated by serological screening of an ovarian tumor cDNA expression library, using a technique designed to identify secreted tumor antigens. Briefly, a late passage ovarian tumor expression library was prepared from a SCID-derived human ovarian tumor (OV9334) in the vector λ-screen (Novagen). The sera used for screening were obtained by injecting immunocompetent mice with sera from SCID mice implanted with one late

passage ovarian tumors. This technique permits the identification of cDNA molecules that encode immunogenic portions of secreted tumor antigens.

The polynucleotides recited herein, as well as full length polynucleotides comprising such sequences, other portions of such full length polynucleotides, and 5 sequences complementary to all or a portion of such full length molecules, are specifically encompassed by the present invention. It will be apparent to those of ordinary skill in the art that this technique can also be applied to the identification of antigens that are secreted from other types of tumors.

Other nucleic acid sequences of cDNA molecules encoding portions of 10 ovarian carcinoma proteins are provided in Figures 4-9 (SEQ ID NOS:75-81), as well as SEQ ID NOS:313-384. These sequences were identified by screening a microarray of cDNAs for tumor-associated expression (*i.e.*, expression that is at least five fold greater in an ovarian tumor than in normal ovarian tissue, as determined using a representative assay provided herein). Such screens were performed using a Synteni microarray (Palo 15 Alto, CA) according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997). SEQ ID NOS:311 and 391 provide full length sequences incorporating certain of these nucleic acid sequences.

Any of a variety of well known techniques may be used to evaluate 20 tumor-associated expression of a cDNA. For example, hybridization techniques using labeled polynucleotide probes may be employed. Alternatively, or in addition, amplification techniques such as real-time PCR may be used (*see* Gibson et al., *Genome Research* 6:995-1001, 1996; Heid et al., *Genome Research* 6:986-994, 1996). Real-time PCR is a technique that evaluates the level of PCR product accumulation during 25 amplification. This technique permits quantitative evaluation of mRNA levels in multiple samples. Briefly, mRNA is extracted from tumor and normal tissue and cDNA is prepared using standard techniques. Real-time PCR may be performed, for example, using a Perkin Elmer/Applied Biosystems (Foster City, CA) 7700 Prism instrument. Matching primers and fluorescent probes may be designed for genes of interest using, 30 for example, the primer express program provided by Perkin Elmer/Applied Biosystems (Foster City, CA). Optimal concentrations of primers and probes may be initially

determined by those of ordinary skill in the art, and control (*e.g.*, β -actin) primers and probes may be obtained commercially from, for example, Perkin Elmer/Applied Biosystems (Foster City, CA). To quantitate the amount of specific RNA in a sample, a standard curve is generated alongside using a plasmid containing the gene of interest.

5 Standard curves may be generated using the Ct values determined in the real-time PCR, which are related to the initial cDNA concentration used in the assay. Standard dilutions ranging from 10-10⁶ copies of the gene of interest are generally sufficient. In addition, a standard curve is generated for the control sequence. This permits standardization of initial RNA content of a tissue sample to the amount of control for

10 comparison purposes.

Polynucleotide variants may generally be prepared by any method known in the art, including chemical synthesis by, for example, solid phase phosphoramidite chemical synthesis. Modifications in a polynucleotide sequence may also be introduced using standard mutagenesis techniques, such as oligonucleotide-directed site-specific mutagenesis (*see* Adelman et al., *DNA* 2:183, 1983). Alternatively, RNA molecules may be generated by *in vitro* or *in vivo* transcription of DNA sequences encoding an ovarian carcinoma antigen, or portion thereof, provided that the DNA is incorporated into a vector with a suitable RNA polymerase promoter (such as T7 or SP6). Certain portions may be used to prepare an encoded polypeptide,

15 as described herein. In addition, or alternatively, a portion may be administered to a patient such that the encoded polypeptide is generated *in vivo*.

A portion of a sequence complementary to a coding sequence (*i.e.*, an antisense polynucleotide) may also be used as a probe or to modulate gene expression. cDNA constructs that can be transcribed into antisense RNA may also be introduced

25 into cells or tissues to facilitate the production of antisense RNA. An antisense polynucleotide may be used, as described herein, to inhibit expression of an ovarian carcinoma protein. Antisense technology can be used to control gene expression through triple-helix formation, which compromises the ability of the double helix to open sufficiently for the binding of polymerases, transcription factors or regulatory

30 molecules (*see* Gee et al., *In Huber and Carr, Molecular and Immunologic Approaches*, Futura Publishing Co. (Mt. Kisco, NY; 1994). Alternatively, an antisense molecule

may be designed to hybridize with a control region of a gene (e.g., promoter, enhancer or transcription initiation site), and block transcription of the gene; or to block translation by inhibiting binding of a transcript to ribosomes.

Any polynucleotide may be further modified to increase stability *in vivo*.

- 5 Possible modifications include, but are not limited to, the addition of flanking sequences at the 5' and/or 3' ends; the use of phosphorothioate or 2' O-methyl rather than phosphodiesterase linkages in the backbone; and/or the inclusion of nontraditional bases such as inosine, queosine and wybutosine, as well as acetyl-, methyl-, thio- and other modified forms of adenine, cytidine, guanine, thymine and uridine.

10 Nucleotide sequences as described herein may be joined to a variety of other nucleotide sequences using established recombinant DNA techniques. For example, a polynucleotide may be cloned into any of a variety of cloning vectors, including plasmids, phagemids, lambda phage derivatives and cosmids. Vectors of particular interest include expression vectors, replication vectors, probe generation
15 vectors and sequencing vectors. In general, a vector will contain an origin of replication functional in at least one organism, convenient restriction endonuclease sites and one or more selectable markers. Other elements will depend upon the desired use, and will be apparent to those of ordinary skill in the art.

Within certain embodiments, polynucleotides may be formulated so as to
20 permit entry into a cell of a mammal, and expression therein. Such formulations are particularly useful for therapeutic purposes, as described below. Those of ordinary skill in the art will appreciate that there are many ways to achieve expression of a polynucleotide in a target cell, and any suitable method may be employed. For example, a polynucleotide may be incorporated into a viral vector such as, but not
25 limited to, adenovirus, adeno-associated virus, retrovirus, or vaccinia or other pox virus (e.g., avian pox virus). Techniques for incorporating DNA into such vectors are well known to those of ordinary skill in the art. A retroviral vector may additionally transfer or incorporate a gene for a selectable marker (to aid in the identification or selection of transduced cells) and/or a targeting moiety, such as a gene that encodes a ligand for a
30 receptor on a specific target cell, to render the vector target specific. Targeting may

also be accomplished using an antibody, by methods known to those of ordinary skill in the art.

Other formulations for therapeutic purposes include colloidal dispersion systems, such as macromolecule complexes, nanocapsules, microspheres, beads, and 5 lipid-based systems including oil-in-water emulsions, micelles, mixed micelles, and liposomes. A preferred colloidal system for use as a delivery vehicle *in vitro* and *in vivo* is a liposome (*i.e.*, an artificial membrane vesicle). The preparation and use of such systems is well known in the art.

10 OVARIAN CARCINOMA POLYPEPTIDES

Within the context of the present invention, polypeptides may comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof, as described herein. As noted above, certain ovarian carcinoma proteins are ovarian carcinoma antigens that are expressed by ovarian tumor cells and react detectably 15 within an immunoassay (such as an ELISA) with antisera generated against serum from an immunodeficient animal implanted with an ovarian tumor. Other ovarian carcinoma proteins are encoded by ovarian carcinoma polynucleotides recited herein. Polypeptides as described herein may be of any length. Additional sequences derived from the native protein and/or heterologous sequences may be present, and such sequences may (but 20 need not) possess further immunogenic or antigenic properties.

An "immunogenic portion," as used herein is a portion of an antigen that is recognized (*i.e.*, specifically bound) by a B-cell and/or T-cell surface antigen receptor. Such immunogenic portions generally comprise at least 5 amino acid residues, more preferably at least 10, and still more preferably at least 20 amino acid 25 residues of an ovarian carcinoma protein or a variant thereof. Preferred immunogenic portions are encoded by cDNA molecules isolated as described herein. Further immunogenic portions may generally be identified using well known techniques, such as those summarized in Paul, *Fundamental Immunology*, 3rd ed., 243-247 (Raven Press, 1993) and references cited therein. Such techniques include screening polypeptides for 30 the ability to react with ovarian carcinoma protein-specific antibodies, antisera and/or T-cell lines or clones. As used herein, antisera and antibodies are "ovarian carcinoma

protein-specific" if they specifically bind to an ovarian carcinoma protein (*i.e.*, they react with the ovarian carcinoma protein in an ELISA or other immunoassay, and do not react detectably with unrelated proteins). Such antisera, antibodies and T cells may be prepared as described herein, and using well known techniques. An immunogenic portion of a native ovarian carcinoma protein is a portion that reacts with such antisera, antibodies and/or T-cells at a level that is not substantially less than the reactivity of the full length polypeptide (*e.g.*, in an ELISA and/or T-cell reactivity assay). Such immunogenic portions may react within such assays at a level that is similar to or greater than the reactivity of the full length protein. Such screens may generally be performed using methods well known to those of ordinary skill in the art, such as those described in Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. For example, a polypeptide may be immobilized on a solid support and contacted with patient sera to allow binding of antibodies within the sera to the immobilized polypeptide. Unbound sera may then be removed and bound antibodies detected using, for example, ¹²⁵I-labeled Protein A.

As noted above, a composition may comprise a variant of a native ovarian carcinoma protein. A polypeptide "variant," as used herein, is a polypeptide that differs from a native ovarian carcinoma protein in one or more substitutions, deletions, additions and/or insertions, such that the immunogenicity of the polypeptide is not substantially diminished. In other words, the ability of a variant to react with ovarian carcinoma protein-specific antisera may be enhanced or unchanged, relative to the native ovarian carcinoma protein, or may be diminished by less than 50%, and preferably less than 20%, relative to the native ovarian carcinoma protein. Such variants may generally be identified by modifying one of the above polypeptide sequences and evaluating the reactivity of the modified polypeptide with ovarian carcinoma protein-specific antibodies or antisera as described herein. Preferred variants include those in which one or more portions, such as an N-terminal leader sequence or transmembrane domain, have been removed. Other preferred variants include variants in which a small portion (*e.g.*, 1-30 amino acids, preferably 5-15 amino acids) has been removed from the N- and/or C-terminal of the mature protein.

Polypeptide variants preferably exhibit at least about 70%, more preferably at least about 90% and most preferably at least about 95% identity to the native polypeptide. Preferably, a variant contains conservative substitutions. A "conservative substitution" is one in which an amino acid is substituted for another 5 amino acid that has similar properties, such that one skilled in the art of peptide chemistry would expect the secondary structure and hydropathic nature of the polypeptide to be substantially unchanged. Amino acid substitutions may generally be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity and/or the amphipathic nature of the residues. For example, negatively 10 charged amino acids include aspartic acid and glutamic acid; positively charged amino acids include lysine and arginine; and amino acids with uncharged polar head groups having similar hydrophilicity values include leucine, isoleucine and valine; glycine and alanine; asparagine and glutamine; and serine, threonine, phenylalanine and tyrosine. Other groups of amino acids that may represent conservative changes include: (1) ala, 15 pro, gly, glu, asp, gln, asn, ser, thr; (2) cys, ser, tyr, thr; (3) val, ile, leu, met, ala, phe; (4) lys, arg, his; and (5) phe, tyr, trp, his. A variant may also, or alternatively, contain nonconservative changes. Variants may also (or alternatively) be modified by, for example, the deletion or addition of amino acids that have minimal influence on the immunogenicity, secondary structure and hydropathic nature of the polypeptide.

As noted above, polypeptides may comprise a signal (or leader) sequence at the N-terminal end of the protein which co-translationally or post-translationally directs transfer of the protein. The polypeptide may also be conjugated to a linker or other sequence for ease of synthesis, purification or identification of the polypeptide (*e.g.*, poly-His), or to enhance binding of the polypeptide to a solid support. 20 For example, a polypeptide may be conjugated to an immunoglobulin Fc region.

Polypeptides may be prepared using any of a variety of well known techniques. Recombinant polypeptides encoded by DNA sequences as described above may be readily prepared from the DNA sequences using any of a variety of expression vectors known to those of ordinary skill in the art. Expression may be achieved in any 30 appropriate host cell that has been transformed or transfected with an expression vector containing a DNA molecule that encodes a recombinant polypeptide. Suitable host

cells include prokaryotes, yeast and higher eukaryotic cells. Preferably, the host cells employed are *E. coli*, yeast or a mammalian cell line such as COS or CHO. Supernatants from suitable host/vector systems which secrete recombinant protein or polypeptide into culture media may be first concentrated using a commercially available filter. Following concentration, the concentrate may be applied to a suitable purification matrix such as an affinity matrix or an ion exchange resin. Finally, one or more reverse phase HPLC steps can be employed to further purify a recombinant polypeptide.

Portions and other variants having fewer than about 100 amino acids, and generally fewer than about 50 amino acids, may also be generated by synthetic means, using techniques well known to those of ordinary skill in the art. For example, such polypeptides may be synthesized using any of the commercially available solid-phase techniques, such as the Merrifield solid-phase synthesis method, where amino acids are sequentially added to a growing amino acid chain. See Merrifield, *J. Am. Chem. Soc.* 85:2149-2146, 1963. Equipment for automated synthesis of polypeptides is commercially available from suppliers such as Applied BioSystems, Inc. (Foster City, CA), and may be operated according to the manufacturer's instructions.

Within certain specific embodiments, a polypeptide may be a fusion protein that comprises multiple polypeptides as described herein, or that comprises one polypeptide as described herein and a known tumor antigen, such as an ovarian carcinoma protein or a variant of such a protein. A fusion partner may, for example, assist in providing T helper epitopes (an immunological fusion partner), preferably T helper epitopes recognized by humans, or may assist in expressing the protein (an expression enhancer) at higher yields than the native recombinant protein. Certain preferred fusion partners are both immunological and expression enhancing fusion partners. Other fusion partners may be selected so as to increase the solubility of the protein or to enable the protein to be targeted to desired intracellular compartments. Still further fusion partners include affinity tags, which facilitate purification of the protein.

Fusion proteins may generally be prepared using standard techniques, including chemical conjugation. Preferably, a fusion protein is expressed as a

recombinant protein, allowing the production of increased levels, relative to a non-fused protein, in an expression system. Briefly, DNA sequences encoding the polypeptide components may be assembled separately, and ligated into an appropriate expression vector. The 3' end of the DNA sequence encoding one polypeptide component is 5 ligated, with or without a peptide linker, to the 5' end of a DNA sequence encoding the second polypeptide component so that the reading frames of the sequences are in phase. This permits translation into a single fusion protein that retains the biological activity of both component polypeptides.

A peptide linker sequence may be employed to separate the first and the 10 second polypeptide components by a distance sufficient to ensure that each polypeptide folds into its secondary and tertiary structures. Such a peptide linker sequence is incorporated into the fusion protein using standard techniques well known in the art. Suitable peptide linker sequences may be chosen based on the following factors: 15 (1) their ability to adopt a flexible extended conformation; (2) their inability to adopt a secondary structure that could interact with functional epitopes on the first and second polypeptides; and (3) the lack of hydrophobic or charged residues that might react with the polypeptide functional epitopes. Preferred peptide linker sequences contain Gly, Asn and Ser residues. Other near neutral amino acids, such as Thr and Ala may also be used in the linker sequence. Amino acid sequences which may be usefully employed as 20 linkers include those disclosed in Maratea et al., *Gene* 40:39-46, 1985; Murphy et al., *Proc. Natl. Acad. Sci. USA* 83:8258-8262, 1986; U.S. Patent No. 4,935,233 and U.S. Patent No. 4,751,180. The linker sequence may generally be from 1 to about 50 amino acids in length. Linker sequences are not required when the first and second polypeptides have non-essential N-terminal amino acid regions that can be used to 25 separate the functional domains and prevent steric interference.

The ligated DNA sequences are operably linked to suitable transcriptional or translational regulatory elements. The regulatory elements responsible for expression of DNA are located only 5' to the DNA sequence encoding the first polypeptides. Similarly, stop codons required to end translation and 30 transcription termination signals are only present 3' to the DNA sequence encoding the second polypeptide.

Fusion proteins are also provided that comprise a polypeptide of the present invention together with an unrelated immunogenic protein. Preferably the immunogenic protein is capable of eliciting a recall response. Examples of such proteins include tetanus, tuberculosis and hepatitis proteins (see, for example, Stoute et al. *New Engl. J. Med.*, 336:86-91, 1997).

Within preferred embodiments, an immunological fusion partner is derived from protein D, a surface protein of the gram-negative bacterium *Haemophilus influenzae* B (WO 91/18926). Preferably, a protein D derivative comprises approximately the first third of the protein (e.g., the first N-terminal 100-110 amino acids), and a protein D derivative may be lipidated. Within certain preferred embodiments, the first 109 residues of a Lipoprotein D fusion partner is included on the N-terminus to provide the polypeptide with additional exogenous T-cell epitopes and to increase the expression level in *E. coli* (thus functioning as an expression enhancer). The lipid tail ensures optimal presentation of the antigen to antigen present cells. Other fusion partners include the non-structural protein from influenzae virus, NS1 (hemagglutinin). Typically, the N-terminal 81 amino acids are used, although different fragments that include T-helper epitopes may be used.

In another embodiment, the immunological fusion partner is the protein known as LYTA, or a portion thereof (preferably a C-terminal portion). LYTA is derived from *Streptococcus pneumoniae*, which synthesizes an N-acetyl-L-alanine amidase known as amidase LYTA (encoded by the LytA gene; *Gene* 43:265-292, 1986). LYTA is an autolysin that specifically degrades certain bonds in the peptidoglycan backbone. The C-terminal domain of the LYTA protein is responsible for the affinity to the choline or to some choline analogues such as DEAE. This property has been exploited for the development of *E. coli* C-LYTA expressing plasmids useful for expression of fusion proteins. Purification of hybrid proteins containing the C-LYTA fragment at the amino terminus has been described (see *Biotechnology* 10:795-798, 1992). Within a preferred embodiment, a repeat portion of LYTA may be incorporated into a fusion protein. A repeat portion is found in the C-terminal region starting at residue 178. A particularly preferred repeat portion incorporates residues 188-305.

In general, polypeptides (including fusion proteins) and polynucleotides as described herein are isolated. An "isolated" polypeptide or polynucleotide is one that is removed from its original environment. For example, a naturally-occurring protein is isolated if it is separated from some or all of the coexisting materials in the natural system. Preferably, such polypeptides are at least about 90% pure, more preferably at least about 95% pure and most preferably at least about 99% pure. A polynucleotide is considered to be isolated if, for example, it is cloned into a vector that is not a part of the natural environment.

10 BINDING AGENTS

The present invention further provides agents, such as antibodies and antigen-binding fragments thereof, that specifically bind to an ovarian carcinoma protein. As used herein, an antibody, or antigen-binding fragment thereof, is said to "specifically bind" to an ovarian carcinoma protein if it reacts at a detectable level (within, for example, an ELISA) with an ovarian carcinoma protein, and does not react detectably with unrelated proteins under similar conditions. As used herein, "binding" refers to a noncovalent association between two separate molecules such that a "complex" is formed. The ability to bind may be evaluated by, for example, determining a binding constant for the formation of the complex. The binding constant is the value obtained when the concentration of the complex is divided by the product of the component concentrations. In general, two compounds are said to "bind," in the context of the present invention, when the binding constant for complex formation exceeds about 10^3 L/mol. The binding constant maybe determined using methods well known in the art.

Binding agents may be further capable of differentiating between patients with and without a cancer, such as ovarian cancer, using the representative assays provided herein. In other words, antibodies or other binding agents that bind to a ovarian carcinoma antigen will generate a signal indicating the presence of a cancer in at least about 20% of patients with the disease, and will generate a negative signal indicating the absence of the disease in at least about 90% of individuals without the cancer. To determine whether a binding agent satisfies this requirement, biological

samples (e.g., blood, sera, leukophoresis, urine and/or tumor biopsies) from patients with and without a cancer (as determined using standard clinical tests) may be assayed as described herein for the presence of polypeptides that bind to the binding agent. It will be apparent that a statistically significant number of samples with and without the disease should be assayed. Each binding agent should satisfy the above criteria; however, those of ordinary skill in the art will recognize that binding agents may be used in combination to improve sensitivity.

Any agent that satisfies the above requirements may be a binding agent. For example, a binding agent may be a ribosome, with or without a peptide component, 10 an RNA molecule or a polypeptide. In a preferred embodiment, a binding agent is an antibody or an antigen-binding fragment thereof. Antibodies may be prepared by any of a variety of techniques known to those of ordinary skill in the art. See, e.g., Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, antibodies can be produced by cell culture techniques, including the generation 15 of monoclonal antibodies as described herein, or via transfection of antibody genes into suitable bacterial or mammalian cell hosts, in order to allow for the production of recombinant antibodies. In one technique, an immunogen comprising the polypeptide is initially injected into any of a wide variety of mammals (e.g., mice, rats, rabbits, sheep or goats). In this step, the polypeptides of this invention may serve as the immunogen 20 without modification. Alternatively, particularly for relatively short polypeptides, a superior immune response may be elicited if the polypeptide is joined to a carrier protein, such as bovine serum albumin or keyhole limpet hemocyanin. The immunogen is injected into the animal host, preferably according to a predetermined schedule incorporating one or more booster immunizations, and the animals are bled periodically. 25 Polyclonal antibodies specific for the polypeptide may then be purified from such antisera by, for example, affinity chromatography using the polypeptide coupled to a suitable solid support.

Monoclonal antibodies specific for an antigenic polypeptide of interest may be prepared, for example, using the technique of Kohler and Milstein, *Eur. J. 30 Immunol.* 6:511-519, 1976, and improvements thereto. Briefly, these methods involve the preparation of immortal cell lines capable of producing antibodies having the

desired specificity (*i.e.*, reactivity with the polypeptide of interest). Such cell lines may be produced, for example, from spleen cells obtained from an animal immunized as described above. The spleen cells are then immortalized by, for example, fusion with a myeloma cell fusion partner, preferably one that is syngeneic with the immunized 5 animal. A variety of fusion techniques may be employed. For example, the spleen cells and myeloma cells may be combined with a nonionic detergent for a few minutes and then plated at low density on a selective medium that supports the growth of hybrid cells, but not myeloma cells. A preferred selection technique uses HAT (hypoxanthine, aminopterin, thymidine) selection. After a sufficient time, usually about 1 to 2 weeks, 10 colonies of hybrids are observed. Single colonies are selected and their culture supernatants tested for binding activity against the polypeptide. Hybridomas having high reactivity and specificity are preferred.

Monoclonal antibodies may be isolated from the supernatants of growing hybridoma colonies. In addition, various techniques may be employed to enhance the 15 yield, such as injection of the hybridoma cell line into the peritoneal cavity of a suitable vertebrate host, such as a mouse. Monoclonal antibodies may then be harvested from the ascites fluid or the blood. Contaminants may be removed from the antibodies by conventional techniques, such as chromatography, gel filtration, precipitation, and extraction. The polypeptides of this invention may be used in the purification process 20 in, for example, an affinity chromatography step.

Within certain embodiments, the use of antigen-binding fragments of antibodies may be preferred. Such fragments include Fab fragments, which may be prepared using standard techniques. Briefly, immunoglobulins may be purified from rabbit serum by affinity chromatography on Protein A bead columns (Harlow and Lane, 25 *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988) and digested by papain to yield Fab and Fc fragments. The Fab and Fc fragments may be separated by affinity chromatography on protein A bead columns.

Monoclonal antibodies of the present invention may be coupled to one or more therapeutic agents. Suitable agents in this regard include radionuclides, 30 differentiation inducers, drugs, toxins, and derivatives thereof. Preferred radionuclides include ⁹⁰Y, ¹²³I, ¹²⁵I, ¹³¹I, ¹⁸⁶Re, ¹⁸⁸Re, ²¹¹At, and ²¹²Bi. Preferred drugs include

methotrexate, and pyrimidine and purine analogs. Preferred differentiation inducers include phorbol esters and butyric acid. Preferred toxins include ricin, abrin, diphtheria toxin, cholera toxin, gelonin, *Pseudomonas* exotoxin, *Shigella* toxin, and pokeweed antiviral protein.

- 5 A therapeutic agent may be coupled (*e.g.*, covalently bonded) to a suitable monoclonal antibody either directly or indirectly (*e.g.*, via a linker group). A direct reaction between an agent and an antibody is possible when each possesses a substituent capable of reacting with the other. For example, a nucleophilic group, such as an amino or sulphhydryl group, on one may be capable of reacting with a carbonyl-containing group, such as an anhydride or an acid halide, or with an alkyl group containing a good leaving group (*e.g.*, a halide) on the other.
- 10 10

Alternatively, it may be desirable to couple a therapeutic agent and an antibody via a linker group. A linker group can function as a spacer to distance an antibody from an agent in order to avoid interference with binding capabilities. A 15 linker group can also serve to increase the chemical reactivity of a substituent on an agent or an antibody, and thus increase the coupling efficiency. An increase in chemical reactivity may also facilitate the use of agents, or functional groups on agents, which otherwise would not be possible.

It will be evident to those skilled in the art that a variety of bifunctional 20 or polyfunctional reagents, both homo- and hetero-functional (such as those described in the catalog of the Pierce Chemical Co., Rockford, IL), may be employed as the linker group. Coupling may be effected, for example, through amino groups, carboxyl groups, sulphhydryl groups or oxidized carbohydrate residues. There are numerous references describing such methodology, *e.g.*, U.S. Patent No. 4,671,958, to Rodwell et al.

25 Where a therapeutic agent is more potent when free from the antibody portion of the immunoconjugates of the present invention, it may be desirable to use a linker group which is cleavable during or upon internalization into a cell. A number of different cleavable linker groups have been described. The mechanisms for the intracellular release of an agent from these linker groups include cleavage by reduction 30 of a disulfide bond (*e.g.*, U.S. Patent No. 4,489,710, to Spitzer), by irradiation of a photolabile bond (*e.g.*, U.S. Patent No. 4,625,014, to Senter et al.), by hydrolysis of

derivatized amino acid side chains (*e.g.*, U.S. Patent No. 4,638,045, to Kohn et al.), by serum complement-mediated hydrolysis (*e.g.*, U.S. Patent No. 4,671,958, to Rodwell et al.), and acid-catalyzed hydrolysis (*e.g.*, U.S. Patent No. 4,569,789, to Blattler et al.).

It may be desirable to couple more than one agent to an antibody. In one embodiment, multiple molecules of an agent are coupled to one antibody molecule. In another embodiment, more than one type of agent may be coupled to one antibody. Regardless of the particular embodiment, immunoconjugates with more than one agent may be prepared in a variety of ways. For example, more than one agent may be coupled directly to an antibody molecule, or linkers which provide multiple sites for attachment can be used. Alternatively, a carrier can be used.

A carrier may bear the agents in a variety of ways, including covalent bonding either directly or via a linker group. Suitable carriers include proteins such as albumins (*e.g.*, U.S. Patent No. 4,507,234, to Kato et al.), peptides and polysaccharides such as aminodextran (*e.g.*, U.S. Patent No. 4,699,784, to Shih et al.). A carrier may also bear an agent by noncovalent bonding or by encapsulation, such as within a liposome vesicle (*e.g.*, U.S. Patent Nos. 4,429,008 and 4,873,088). Carriers specific for radionuclide agents include radiohalogenated small molecules and chelating compounds. For example, U.S. Patent No. 4,735,792 discloses representative radiohalogenated small molecules and their synthesis. A radionuclide chelate may be formed from chelating compounds that include those containing nitrogen and sulfur atoms as the donor atoms for binding the metal, or metal oxide, radionuclide. For example, U.S. Patent No. 4,673,562, to Davison et al. discloses representative chelating compounds and their synthesis.

A variety of routes of administration for the antibodies and immunoconjugates may be used. Typically, administration will be intravenous, intramuscular, subcutaneous or in the bed of a resected tumor. It will be evident that the precise dose of the antibody/immunoconjugate will vary depending upon the antibody used, the antigen density on the tumor, and the rate of clearance of the antibody.

Also provided herein are anti-idiotypic antibodies that mimic an immunogenic portion of an ovarian carcinoma protein. Such antibodies may be raised against an antibody, or antigen-binding fragment thereof, that specifically binds to an

immunogenic portion of an ovarian carcinoma protein, using well known techniques. Anti-idiotypic antibodies that mimic an immunogenic portion of an ovarian carcinoma protein are those antibodies that bind to an antibody, or antigen-binding fragment thereof, that specifically binds to an immunogenic portion of an ovarian carcinoma 5 protein, as described herein.

T CELLS

Immunotherapeutic compositions may also, or alternatively, comprise T cells specific for an ovarian carcinoma protein. Such cells may generally be prepared *in vitro* or *ex vivo*, using standard procedures. For example, T cells may be present within 10 (or isolated from) bone marrow, peripheral blood or a fraction of bone marrow or peripheral blood of a mammal, such as a patient, using a commercially available cell separation system, such as the CEPRATE™ system, available from CellPro Inc., Bothell WA (see also U.S. Patent No. 5,240,856; U.S. Patent No. 5,215,926; WO 15 89/06280; WO 91/16116 and WO 92/07243). Alternatively, T cells may be derived from related or unrelated humans, non-human animals, cell lines or cultures.

T cells may be stimulated with an ovarian carcinoma polypeptide, polynucleotide encoding an ovarian carcinoma polypeptide and/or an antigen presenting cell (APC) that expresses such a polypeptide. Such stimulation is performed under 20 conditions and for a time sufficient to permit the generation of T cells that are specific for the polypeptide. Preferably, an ovarian carcinoma polypeptide or polynucleotide is present within a delivery vehicle, such as a microsphere, to facilitate the generation of specific T cells.

T cells are considered to be specific for an ovarian carcinoma 25 polypeptide if the T cells kill target cells coated with an ovarian carcinoma polypeptide or expressing a gene encoding such a polypeptide. T cell specificity may be evaluated using any of a variety of standard techniques. For example, within a chromium release assay or proliferation assay, a stimulation index of more than two fold increase in lysis and/or proliferation, compared to negative controls, indicates T cell specificity. Such 30 assays may be performed, for example, as described in Chen et al., *Cancer Res.* 54:1065-1070, 1994. Alternatively, detection of the proliferation of T cells may be

accomplished by a variety of known techniques. For example, T cell proliferation can be detected by measuring an increased rate of DNA synthesis (e.g., by pulse-labeling cultures of T cells with tritiated thymidine and measuring the amount of tritiated thymidine incorporated into DNA). Contact with an ovarian carcinoma polypeptide 5 (200 ng/ml - 100 µg/ml, preferably 100 ng/ml - 25 µg/ml) for 3 - 7 days should result in at least a two fold increase in proliferation of the T cells and/or contact as described above for 2-3 hours should result in activation of the T cells, as measured using standard cytokine assays in which a two fold increase in the level of cytokine release (e.g., TNF or IFN- γ) is indicative of T cell activation (see Coligan et al., Current 10 Protocols in Immunology, vol. 1, Wiley Interscience (Greene 1998)). T cells that have been activated in response to an ovarian carcinoma polypeptide, polynucleotide or ovarian carcinoma polypeptide-expressing APC may be CD4 $^{+}$ and/or CD8 $^{+}$. Ovarian carcinoma polypeptide-specific T cells may be expanded using standard techniques. Within preferred embodiments, the T cells are derived from a patient or a related or 15 unrelated donor and are administered to the patient following stimulation and expansion.

For therapeutic purposes, CD4 $^{+}$ or CD8 $^{+}$ T cells that proliferate in response to an ovarian carcinoma polypeptide, polynucleotide or APC can be expanded in number either *in vitro* or *in vivo*. Proliferation of such T cells *in vitro* may be 20 accomplished in a variety of ways. For example, the T cells can be re-exposed to an ovarian carcinoma polypeptide, with or without the addition of T cell growth factors, such as interleukin-2, and/or stimulator cells that synthesize an ovarian carcinoma polypeptide. Alternatively, one or more T cells that proliferate in the presence of an ovarian carcinoma polypeptide can be expanded in number by cloning. Methods for 25 cloning cells are well known in the art, and include limiting dilution. Following expansion, the cells may be administered back to the patient as described, for example, by Chang et al., *Crit. Rev. Oncol. Hematol.* 22:213, 1996.

PHARMACEUTICAL COMPOSITIONS AND VACCINES

30 Within certain aspects, polypeptides, polynucleotides, binding agents and/or immune system cells as described herein may be incorporated into

pharmaceutical compositions or vaccines. Pharmaceutical compositions comprise one or more such compounds or cells and a physiologically acceptable carrier. Vaccines may comprise one or more such compounds or cells and a non-specific immune response enhancer. A non-specific immune response enhancer may be any substance 5 that enhances an immune response to an exogenous antigen. Examples of non-specific immune response enhancers include adjuvants, biodegradable microspheres (e.g., polylactic galactide) and liposomes (into which the compound is incorporated; see e.g., Fullerton, U.S. Patent No. 4,235,877). Vaccine preparation is generally described in, for example, M.F. Powell and M.J. Newman, eds., "Vaccine Design (the subunit and 10 adjuvant approach)," Plenum Press (NY, 1995). Pharmaceutical compositions and vaccines within the scope of the present invention may also contain other compounds, which may be biologically active or inactive. For example, one or more immunogenic portions of other tumor antigens may be present, either incorporated into a fusion polypeptide or as a separate compound within the composition or vaccine.

15 A pharmaceutical composition or vaccine may contain DNA encoding one or more of the polypeptides as described above, such that the polypeptide is generated *in situ*. As noted above, the DNA may be present within any of a variety of delivery systems known to those of ordinary skill in the art, including nucleic acid expression systems, bacteria and viral expression systems. Appropriate nucleic acid 20 expression systems contain the necessary DNA sequences for expression in the patient (such as a suitable promoter and terminating signal). Bacterial delivery systems involve the administration of a bacterium (such as *Bacillus-Calmette-Guerrin*) that expresses an immunogenic portion of the polypeptide on its cell surface. In a preferred embodiment, the DNA may be introduced using a viral expression system (e.g., vaccinia or other pox 25 virus, retrovirus, or adenovirus), which may involve the use of a non-pathogenic (defective), replication competent virus. Suitable systems are disclosed, for example, in Fisher-Hoch et al., *PNAS* 86:317-321, 1989; Flexner et al., *Ann. N.Y. Acad. Sci.* 569:86-103, 1989; Flexner et al., *Vaccine* 8:17-21, 1990; U.S. Patent Nos. 4,603,112, 4,769,330, and 5,017,487; WO 89/01973; U.S. Patent No. 4,777,127; GB 2,200,651; 30 EP 0,345,242; WO 91/02805; Berkner, *Biotechniques* 6:616-627, 1988; Rosenfeld et al., *Science* 252:431-434, 1991; Kolls et al., *PNAS* 91:215-219, 1994; Kass-Eisler et al.,

PNAS 90:11498-11502, 1993; Guzman et al., *Circulation* 88:2838-2848, 1993; and Guzman et al., *Cir. Res.* 73:1202-1207, 1993. Techniques for incorporating DNA into such expression systems are well known to those of ordinary skill in the art. The DNA may also be "naked," as described, for example, in Ulmer et al., *Science* 259:1745-1749, 5 1993 and reviewed by Cohen, *Science* 259:1691-1692, 1993. The uptake of naked DNA may be increased by coating the DNA onto biodegradable beads, which are efficiently transported into the cells.

While any suitable carrier known to those of ordinary skill in the art may be employed in the pharmaceutical compositions of this invention, the type of carrier 10 will vary depending on the mode of administration. Compositions of the present invention may be formulated for any appropriate manner of administration, including for example, topical, oral, nasal, intravenous, intracranial, intraperitoneal, subcutaneous or intramuscular administration. For parenteral administration, such as subcutaneous injection, the carrier preferably comprises water, saline, alcohol, a fat, a wax or a buffer. 15 For oral administration, any of the above carriers or a solid carrier, such as mannitol, lactose, starch, magnesium stearate, sodium saccharine, talcum, cellulose, glucose, sucrose, and magnesium carbonate, may be employed. Biodegradable microspheres (e.g., polylactate polyglycolate) may also be employed as carriers for the pharmaceutical compositions of this invention. Suitable biodegradable microspheres 20 are disclosed, for example, in U.S. Patent Nos. 4,897,268 and 5,075,109.

Such compositions may also comprise buffers (e.g., neutral buffered saline or phosphate buffered saline), carbohydrates (e.g., glucose, mannose, sucrose or dextrans), mannitol, proteins, polypeptides or amino acids such as glycine, antioxidants, chelating agents such as EDTA or glutathione, adjuvants (e.g., aluminum hydroxide) 25 and/or preservatives. Alternatively, compositions of the present invention may be formulated as a lyophilizate. Compounds may also be encapsulated within liposomes using well known technology.

Any of a variety of non-specific immune response enhancers may be employed in the vaccines of this invention. For example, an adjuvant may be included. 30 Most adjuvants contain a substance designed to protect the antigen from rapid catabolism, such as aluminum hydroxide or mineral oil, and a stimulator of immune

responses, such as lipid A, *Bordetella pertussis* or *Mycobacterium tuberculosis* derived proteins. Suitable adjuvants are commercially available as, for example, Freund's Incomplete Adjuvant and Complete Adjuvant (Difco Laboratories, Detroit, MI), Merck Adjuvant 65 (Merck and Company, Inc., Rahway, NJ), alum, biodegradable 5 microspheres, monophosphoryl lipid A and quil A. Cytokines, such as GM-CSF or interleukin-2, -7, or -12, may also be used as adjuvants.

Within the vaccines provided herein, the adjuvant composition is preferably designed to induce an immune response predominantly of the Th1 type. High levels of Th1-type cytokines (e.g., IFN- γ , IL-2 and IL-12) tend to favor the 10 induction of cell mediated immune responses to an administered antigen. In contrast, high levels of Th2-type cytokines (e.g., IL-4, IL-5, IL-6, IL-10 and TNF- β) tend to favor the induction of humoral immune responses. Following application of a vaccine as provided herein, a patient will support an immune response that includes Th1- and Th2-type responses. Within a preferred embodiment, in which a response is 15 predominantly Th1-type, the level of Th1-type cytokines will increase to a greater extent than the level of Th2-type cytokines. The levels of these cytokines may be readily assessed using standard assays. For a review of the families of cytokines, see Mosmann and Coffman, *Ann. Rev. Immunol.* 7:145-173, 1989.

Preferred adjuvants for use in eliciting a predominantly Th1-type 20 response include, for example, a combination of monophosphoryl lipid A, preferably 3-de-O-acylated monophosphoryl lipid A (3D-MPL), together with an aluminum salt. MPL adjuvants are available from Ribi ImmunoChem Research Inc. (Hamilton, MT; see US Patent Nos. 4,436,727; 4,877,611; 4,866,034 and 4,912,094). Also preferred is AS-2 (SmithKline Beecham). CpG-containing oligonucleotides (in which the CpG 25 dinucleotide is unmethylated) also induce a predominantly Th1 response. Such oligonucleotides are well known and are described, for example, in WO 96/02555. Another preferred adjuvant is a saponin, preferably QS21, which may be used alone or in combination with other adjuvants. For example, an enhanced system involves the combination of a monophosphoryl lipid A and saponin derivative, such as the 30 combination of QS21 and 3D-MPL as described in WO 94/00153, or a less reactogenic composition where the QS21 is quenched with cholesterol, as described in WO

96/33739. Other preferred formulations comprises an oil-in-water emulsion and tocopherol. A particularly potent adjuvant formulation involving QS21, 3D-MPL and tocopherol in an oil-in-water emulsion is described in WO 95/17210. Any vaccine provided herein may be prepared using well known methods that result in a 5 combination of antigen, immune response enhancer and a suitable carrier or excipient.

The compositions described herein may be administered as part of a sustained release formulation (*i.e.*, a formulation such as a capsule or sponge that effects a slow release of compound following administration). Such formulations may generally be prepared using well known technology and administered by, for example, 10 oral, rectal or subcutaneous implantation, or by implantation at the desired target site. Sustained-release formulations may contain a polypeptide, polynucleotide or antibody dispersed in a carrier matrix and/or contained within a reservoir surrounded by a rate controlling membrane. Carriers for use within such formulations are biocompatible, and may also be biodegradable; preferably the formulation provides a relatively 15 constant level of active component release. The amount of active compound contained within a sustained release formulation depends upon the site of implantation, the rate and expected duration of release and the nature of the condition to be treated or prevented.

Any of a variety of delivery vehicles may be employed within 20 pharmaceutical compositions and vaccines to facilitate production of an antigen-specific immune response that targets tumor cells. Delivery vehicles include antigen presenting cells (APCs), such as dendritic cells, macrophages, B cells, monocytes and other cells that may be engineered to be efficient APCs. Such cells may, but need not, be genetically modified to increase the capacity for presenting the antigen, to improve 25 activation and/or maintenance of the T cell response, to have anti-tumor effects *per se* and/or to be immunologically compatible with the receiver (*i.e.*, matched HLA haplotype). APCs may generally be isolated from any of a variety of biological fluids and organs, including tumor and peritumoral tissues, and may be autologous, allogeneic, syngeneic or xenogeneic cells.

30 Certain preferred embodiments of the present invention use dendritic cells or progenitors thereof as antigen-presenting cells. Dendritic cells are highly potent

APCs (Banchereau and Steinman, *Nature* 392:245-251, 1998) and have been shown to be effective as a physiological adjuvant for eliciting prophylactic or therapeutic antitumor immunity (see Timmerman and Levy, *Ann. Rev. Med.* 50:507-529, 1999). In general, dendritic cells may be identified based on their typical shape (stellate *in situ*,
5 with marked cytoplasmic processes (dendrites) visible *in vitro*) and based on the lack of differentiation markers of B cells (CD19 and CD20), T cells (CD3), monocytes (CD14) and natural killer cells (CD56), as determined using standard assays. Dendritic cells may, of course, be engineered to express specific cell-surface receptors or ligands that are not commonly found on dendritic cells *in vivo* or *ex vivo*, and such modified
10 dendritic cells are contemplated by the present invention. As an alternative to dendritic cells, secreted vesicles antigen-loaded dendritic cells (called exosomes) may be used within a vaccine (see Zitvogel et al., *Nature Med.* 4:594-600, 1998).

Dendritic cells and progenitors may be obtained from peripheral blood, bone marrow, tumor-infiltrating cells, peritumoral tissues-infiltrating cells, lymph
15 nodes, spleen, skin, umbilical cord blood or any other suitable tissue or fluid. For example, dendritic cells may be differentiated *ex vivo* by adding a combination of cytokines such as GM-CSF, IL-4, IL-13 and/or TNF α to cultures of monocytes harvested from peripheral blood. Alternatively, CD34 positive cells harvested from peripheral blood, umbilical cord blood or bone marrow may be differentiated into
20 dendritic cells by adding to the culture medium combinations of GM-CSF, IL-3, TNF α , CD40 ligand, LPS, flt3 ligand and/or other compound(s) that induce maturation and proliferation of dendritic cells.

Dendritic cells are conveniently categorized as "immature" and "mature" cells, which allows a simple way to discriminate between two well characterized
25 phenotypes. However, this nomenclature should not be construed to exclude all possible intermediate stages of differentiation. Immature dendritic cells are characterized as APC with a high capacity for antigen uptake and processing, which correlates with the high expression of Fc γ receptor, mannose receptor and DEC-205 marker. The mature phenotype is typically characterized by a lower expression of these
30 markers, but a high expression of cell surface molecules responsible for T cell

activation such as class I and class II MHC, adhesion molecules (*e.g.*, CD54 and CD11) and costimulatory molecules (*e.g.*, CD40, CD80 and CD86).

APCs may generally be transfected with a polynucleotide encoding a ovarian carcinoma antigen (or portion or other variant thereof) such that the antigen, or
5 an immunogenic portion thereof, is expressed on the cell surface. Such transfection may take place *ex vivo*, and a composition or vaccine comprising such transfected cells may then be used for therapeutic purposes, as described herein. Alternatively, a gene delivery vehicle that targets a dendritic or other antigen presenting cell may be administered to a patient, resulting in transfection that occurs *in vivo*. *In vivo* and *ex*
10 *vivo* transfection of dendritic cells, for example, may generally be performed using any methods known in the art, such as those described in WO 97/24447, or the gene gun approach described by Mahvi et al., *Immunology and cell Biology* 75:456-460, 1997. Antigen loading of dendritic cells may be achieved by incubating dendritic cells or progenitor cells with the polypeptide, DNA (naked or within a plasmid vector) or RNA;
15 or with antigen-expressing recombinant bacterium or viruses (*e.g.*, vaccinia, fowlpox, adenovirus or lentivirus vectors). Prior to loading, the polypeptide may be covalently conjugated to an immunological partner that provides T cell help (*e.g.*, a carrier molecule). Alternatively, a dendritic cell may be pulsed with a non-conjugated immunological partner, separately or in the presence of the polypeptide.
20

CANCER THERAPY

In further aspects of the present invention, the compositions described herein may be used for immunotherapy of cancer, such as ovarian cancer. Within such methods, pharmaceutical compositions and vaccines are typically administered to a
25 patient. As used herein, a "patient" refers to any warm-blooded animal, preferably a human. A patient may or may not be afflicted with cancer. Accordingly, the above pharmaceutical compositions and vaccines may be used to prevent the development of a cancer or to treat a patient afflicted with a cancer. Within certain preferred embodiments, a patient is afflicted with ovarian cancer. Such cancer may be diagnosed
30 using criteria generally accepted in the art, including the presence of a malignant tumor. Pharmaceutical compositions and vaccines may be administered either prior to or

following surgical removal of primary tumors and/or treatment such as administration of radiotherapy or conventional chemotherapeutic drugs.

Within certain embodiments, immunotherapy may be active immunotherapy, in which treatment relies on the *in vivo* stimulation of the endogenous host immune system to react against tumors with the administration of immuno response-modifying agents (such as tumor vaccines, bacterial adjuvants and/or cytokines).

Within other embodiments, immunotherapy may be passive immunotherapy, in which treatment involves the delivery of agents with established tumor-immune reactivity (such as effector cells or antibodies) that can directly or indirectly mediate antitumor effects and does not necessarily depend on an intact host immune system. Examples of effector cells include T lymphocytes (such as CD8⁺ cytotoxic T lymphocytes and CD4⁺ T-helper tumor-infiltrating lymphocytes), killer cells (such as Natural Killer cells and lymphokine-activated killer cells), B cells and antigen-presenting cells (such as dendritic cells and macrophages) expressing a polypeptide provided herein. T cell receptors and antibody receptors specific for the polypeptides recited herein may be cloned, expressed and transferred into other vectors or effector cells for adoptive immunotherapy. The polypeptides provided herein may also be used to generate antibodies or anti-idiotypic antibodies (as described above and in U.S. Patent No. 4,918,164) for passive immunotherapy.

Effector cells may generally be obtained in sufficient quantities for adoptive immunotherapy by growth *in vitro*, as described herein. Culture conditions for expanding single antigen-specific effector cells to several billion in number with retention of antigen recognition *in vivo* are well known in the art. Such *in vitro* culture conditions typically use intermittent stimulation with antigen, often in the presence of cytokines (such as IL-2) and non-dividing feeder cells. As noted above, immunoreactive polypeptides as provided herein may be used to rapidly expand antigen-specific T cell cultures in order to generate a sufficient number of cells for immunotherapy. In particular, antigen-presenting cells, such as dendritic, macrophage or B cells, may be pulsed with immunoreactive polypeptides or transfected with one or more polynucleotides using standard techniques well known in the art. For example,

antigen-presenting cells can be transfected with a polynucleotide having a promoter appropriate for increasing expression in a recombinant virus or other expression system. Cultured effector cells for use in therapy must be able to grow and distribute widely, and to survive long term *in vivo*. Studies have shown that cultured effector cells can be
5 induced to grow *in vivo* and to survive long term in substantial numbers by repeated stimulation with antigen supplemented with IL-2 (see, for example, Cheever et al., *Immunological Reviews* 157:177, 1997).

Alternatively, a vector expressing a polypeptide recited herein may be introduced into stem cells taken from a patient and clonally propagated *in vitro* for
10 autologous transplant back into the same patient.

Routes and frequency of administration, as well as dosage, will vary from individual to individual, and may be readily established using standard techniques. In general, the pharmaceutical compositions and vaccines may be administered by injection (*e.g.*, intracutaneous, intramuscular, intravenous or subcutaneous), intranasally
15 (*e.g.*, by aspiration), orally or in the bed of a resected tumor. Preferably, between 1 and 10 doses may be administered over a 52 week period. Preferably, 6 doses are administered, at intervals of 1 month, and booster vaccinations may be given periodically thereafter. Alternate protocols may be appropriate for individual patients. A suitable dose is an amount of a compound that, when administered as described
20 above, is capable of promoting an anti-tumor immune response, and is at least 10-50% above the basal (*i.e.*, untreated) level.. Such response can be monitored by measuring the anti-tumor antibodies in a patient or by vaccine-dependent generation of cytolytic effector cells capable of killing the patient's tumor cells *in vitro*. Such vaccines should also be capable of causing an immune response that leads to an improved clinical
25 outcome (*e.g.*, more frequent remissions, complete or partial or longer disease-free survival) in vaccinated patients as compared to non-vaccinated patients. In general, for pharmaceutical compositions and vaccines comprising one or more polypeptides, the amount of each polypeptide present in a dose ranges from about 100 µg to 5 mg per kg of host. Suitable dose sizes will vary with the size of the patient, but will typically
30 range from about 0.1 mL to about 5 mL.

In general, an appropriate dosage and treatment regimen provides the active compound(s) in an amount sufficient to provide therapeutic and/or prophylactic benefit. Such a response can be monitored by establishing an improved clinical outcome (e.g., more frequent remissions, complete or partial, or longer disease-free 5 survival) in treated patients as compared to non-treated patients. Increases in preexisting immune responses to an ovarian carcinoma antigen generally correlate with an improved clinical outcome. Such immune responses may generally be evaluated using standard proliferation, cytotoxicity or cytokine assays, which may be performed using samples obtained from a patient before and after treatment.

10

SCREENS FOR IDENTIFYING SECRETED OVARIAN CARCINOMA ANTIGENS

The present invention provides methods for identifying secreted tumor antigens. Within such methods, tumors are implanted into immunodeficient animals such as SCID mice and maintained for a time sufficient to permit secretion of tumor 15 antigens into serum. In general, tumors may be implanted subcutaneously or within the gonadal fat pad of an immunodeficient animal and maintained for 1-9 months, preferably 1-4 months. Implantation may generally be performed as described in WO 97/18300. The serum containing secreted antigens is then used to prepare antisera in immunocompetent mice, using standard techniques and as described herein. Briefly, 20 50-100 µL of sera (pooled from three sets of immunodeficient mice, each set bearing a different SCID-derived human ovarian tumor) may be mixed 1:1 (vol:vol) with an appropriate adjuvant, such as RIBI-MPL or MPL + TDM (Sigma Chemical Co., St. Louis, MO) and injected intraperitoneally into syngeneic immunocompetent animals at monthly intervals for a total of 5 months. Antisera from animals immunized in such a 25 manner may be obtained by drawing blood after the third, fourth and fifth immunizations. The resulting antiserum is generally pre-cleared of *E. coli* and phage antigens and used (generally following dilution, such as 1:200) in a serological expression screen.

The library is typically an expression library containing cDNAs from one 30 or more tumors of the type that was implanted into SCID mice. This expression library may be prepared in any suitable vector, such as λ-screen (Novagen). cDNAs that

encode a polypeptide that reacts with the antiserum may be identified using standard techniques, and sequenced. Such cDNA molecules may be further characterized to evaluate expression in tumor and normal tissue, and to evaluate antigen secretion in patients.

5 The methods provided herein have advantages over other methods for tumor antigen discovery. In particular, all antigens identified by such methods should be secreted or released through necrosis of the tumor cells. Such antigens may be present on the surface of tumor cells for an amount of time sufficient to permit targeting and killing by the immune system, following vaccination.

10

METHODS FOR DETECTING CANCER

In general, a cancer may be detected in a patient based on the presence of one or more ovarian carcinoma proteins and/or polynucleotides encoding such proteins in a biological sample (such as blood, sera, urine and/or tumor biopsies) obtained from 15 the patient. In other words, such proteins may be used as markers to indicate the presence or absence of a cancer such as ovarian cancer. In addition, such proteins may be useful for the detection of other cancers. The binding agents provided herein generally permit detection of the level of protein that binds to the agent in the biological sample. Polynucleotide primers and probes may be used to detect the level of mRNA 20 encoding a tumor protein, which is also indicative of the presence or absence of a cancer. In general, an ovarian carcinoma-associated sequence should be present at a level that is at least three fold higher in tumor tissue than in normal tissue

There are a variety of assay formats known to those of ordinary skill in the art for using a binding agent to detect polypeptide markers in a sample. *See, e.g.,* 25 Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, the presence or absence of a cancer in a patient may be determined by (a) contacting a biological sample obtained from a patient with a binding agent; (b) detecting in the sample a level of polypeptide that binds to the binding agent; and (c) comparing the level of polypeptide with a predetermined cut-off value.

30 In a preferred embodiment, the assay involves the use of binding agent immobilized on a solid support to bind to and remove the polypeptide from the

remainder of the sample. The bound polypeptide may then be detected using a detection reagent that contains a reporter group and specifically binds to the binding agent/polypeptide complex. Such detection reagents may comprise, for example, a binding agent that specifically binds to the polypeptide or an antibody or other agent
5 that specifically binds to the binding agent, such as an anti-immunoglobulin, protein G, protein A or a lectin. Alternatively, a competitive assay may be utilized, in which a polypeptide is labeled with a reporter group and allowed to bind to the immobilized binding agent after incubation of the binding agent with the sample. The extent to which components of the sample inhibit the binding of the labeled polypeptide to the
10 binding agent is indicative of the reactivity of the sample with the immobilized binding agent. Suitable polypeptides for use within such assays include full length ovarian carcinoma proteins and portions thereof to which the binding agent binds, as described above.

The solid support may be any material known to those of ordinary skill
15 in the art to which the tumor protein may be attached. For example, the solid support may be a test well in a microtiter plate or a nitrocellulose or other suitable membrane. Alternatively, the support may be a bead or disc, such as glass, fiberglass, latex or a plastic material such as polystyrene or polyvinylchloride. The support may also be a magnetic particle or a fiber optic sensor, such as those disclosed, for example, in U.S.
20 Patent No. 5,359,681. The binding agent may be immobilized on the solid support using a variety of techniques known to those of skill in the art, which are amply described in the patent and scientific literature. In the context of the present invention, the term "immobilization" refers to both noncovalent association, such as adsorption, and covalent attachment (which may be a direct linkage between the agent and
25 functional groups on the support or may be a linkage by way of a cross-linking agent). Immobilization by adsorption to a well in a microtiter plate or to a membrane is preferred. In such cases, adsorption may be achieved by contacting the binding agent, in a suitable buffer, with the solid support for a suitable amount of time. The contact time varies with temperature, but is typically between about 1 hour and about 1 day. In
30 general, contacting a well of a plastic microtiter plate (such as polystyrene or polyvinylchloride) with an amount of binding agent ranging from about 10 ng to about

10 µg, and preferably about 100 ng to about 1 µg, is sufficient to immobilize an adequate amount of binding agent.

Covalent attachment of binding agent to a solid support may generally be achieved by first reacting the support with a bifunctional reagent that will react with both the support and a functional group, such as a hydroxyl or amino group, on the binding agent. For example, the binding agent may be covalently attached to supports having an appropriate polymer coating using benzoquinone or by condensation of an aldehyde group on the support with an amine and an active hydrogen on the binding partner (*see, e.g.*, Pierce Immunotechnology Catalog and Handbook, 1991, at 10 A12-A13).

In certain embodiments, the assay is a two-antibody sandwich assay. This assay may be performed by first contacting an antibody that has been immobilized on a solid support, commonly the well of a microtiter plate, with the sample, such that polypeptides within the sample are allowed to bind to the immobilized antibody. 15 Unbound sample is then removed from the immobilized polypeptide-antibody complexes and a detection reagent (preferably a second antibody capable of binding to a different site on the polypeptide) containing a reporter group is added. The amount of detection reagent that remains bound to the solid support is then determined using a method appropriate for the specific reporter group.

20 More specifically, once the antibody is immobilized on the support as described above, the remaining protein binding sites on the support are typically blocked. Any suitable blocking agent known to those of ordinary skill in the art, such as bovine serum albumin or Tween 20™ (Sigma Chemical Co., St. Louis, MO). The immobilized antibody is then incubated with the sample, and polypeptide is allowed to 25 bind to the antibody. The sample may be diluted with a suitable diluent, such as phosphate-buffered saline (PBS) prior to incubation. In general, an appropriate contact time (*i.e.*, incubation time) is a period of time that is sufficient to detect the presence of polypeptide within a sample obtained from an individual with ovarian cancer. Preferably, the contact time is sufficient to achieve a level of binding that is at least 30 about 95% of that achieved at equilibrium between bound and unbound polypeptide. Those of ordinary skill in the art will recognize that the time necessary to achieve

equilibrium may be readily determined by assaying the level of binding that occurs over a period of time. At room temperature, an incubation time of about 30 minutes is generally sufficient.

Unbound sample may then be removed by washing the solid support
5 with an appropriate buffer, such as PBS containing 0.1% Tween 20TM. The second antibody, which contains a reporter group, may then be added to the solid support. Preferred reporter groups include those groups recited above.

The detection reagent is then incubated with the immobilized antibody-polypeptide complex for an amount of time sufficient to detect the bound polypeptide.
10 An appropriate amount of time may generally be determined by assaying the level of binding that occurs over a period of time. Unbound detection reagent is then removed and bound detection reagent is detected using the reporter group. The method employed for detecting the reporter group depends upon the nature of the reporter group. For radioactive groups, scintillation counting or autoradiographic methods are
15 generally appropriate. Spectroscopic methods may be used to detect dyes, luminescent groups and fluorescent groups. Biotin may be detected using avidin, coupled to a different reporter group (commonly a radioactive or fluorescent group or an enzyme). Enzyme reporter groups may generally be detected by the addition of substrate (generally for a specific period of time), followed by spectroscopic or other analysis of
20 the reaction products.

To determine the presence or absence of a cancer, such as ovarian cancer, the signal detected from the reporter group that remains bound to the solid support is generally compared to a signal that corresponds to a predetermined cut-off value. In one preferred embodiment, the cut-off value for the detection of a cancer is
25 the average mean signal obtained when the immobilized antibody is incubated with samples from patients without the cancer. In general, a sample generating a signal that is three standard deviations above the predetermined cut-off value is considered positive for the cancer. In an alternate preferred embodiment, the cut-off value is determined using a Receiver Operator Curve, according to the method of Sackett et al., *Clinical Epidemiology: A Basic Science for Clinical Medicine*, Little Brown and Co., 1985,
30 p. 106-7. Briefly, in this embodiment, the cut-off value may be determined from a plot

of pairs of true positive rates (*i.e.*, sensitivity) and false positive rates (100%-specificity) that correspond to each possible cut-off value for the diagnostic test result. The cut-off value on the plot that is the closest to the upper left-hand corner (*i.e.*, the value that encloses the largest area) is the most accurate cut-off value, and a sample generating a
5 signal that is higher than the cut-off value determined by this method may be considered positive. Alternatively, the cut-off value may be shifted to the left along the plot, to minimize the false positive rate, or to the right, to minimize the false negative rate. In general, a sample generating a signal that is higher than the cut-off value determined by this method is considered positive for a cancer.

10 In a related embodiment, the assay is performed in a flow-through or strip test format, wherein the binding agent is immobilized on a membrane, such as nitrocellulose. In the flow-through test, polypeptides within the sample bind to the immobilized binding agent as the sample passes through the membrane. A second, labeled binding agent then binds to the binding agent-polypeptide complex as a solution
15 containing the second binding agent flows through the membrane. The detection of bound second binding agent may then be performed as described above. In the strip test format, one end of the membrane to which binding agent is bound is immersed in a solution containing the sample. The sample migrates along the membrane through a region containing second binding agent and to the area of immobilized binding agent.
20 Concentration of second binding agent at the area of immobilized antibody indicates the presence of a cancer. Typically, the concentration of second binding agent at that site generates a pattern, such as a line, that can be read visually. The absence of such a pattern indicates a negative result. In general, the amount of binding agent immobilized on the membrane is selected to generate a visually discernible pattern when the
25 biological sample contains a level of polypeptide that would be sufficient to generate a positive signal in the two-antibody sandwich assay, in the format discussed above. Preferred binding agents for use in such assays are antibodies and antigen-binding fragments thereof. Preferably, the amount of antibody immobilized on the membrane ranges from about 25 ng to about 1 μ g, and more preferably from about 50 ng to about
30 500 ng. Such tests can typically be performed with a very small amount of biological sample.

Of course, numerous other assay protocols exist that are suitable for use with the tumor proteins or binding agents of the present invention. The above descriptions are intended to be exemplary only. For example, it will be apparent to those of ordinary skill in the art that the above protocols may be readily modified to use 5 ovarian carcinoma polypeptides to detect antibodies that bind to such polypeptides in a biological sample. The detection of such ovarian carcinoma protein specific antibodies may correlate with the presence of a cancer.

A cancer may also, or alternatively, be detected based on the presence of T cells that specifically react with an ovarian carcinoma protein in a biological sample. 10 Within certain methods, a biological sample comprising CD4⁺ and/or CD8⁺ T cells isolated from a patient is incubated with an ovarian carcinoma protein, a polynucleotide encoding such a polypeptide and/or an APC that expresses at least an immunogenic portion of such a polypeptide, and the presence or absence of specific activation of the T cells is detected. Suitable biological samples include, but are not limited to, isolated 15 T cells. For example, T cells may be isolated from a patient by routine techniques (such as by Ficoll/Hypaque density gradient centrifugation of peripheral blood lymphocytes). T cells may be incubated *in vitro* for 2-9 days (typically 4 days) at 37°C with an ovarian carcinoma protein (*e.g.*, 5 - 25 µg/ml). It may be desirable to incubate another aliquot of a T cell sample in the absence of ovarian carcinoma protein to serve as a control. For 20 CD4⁺ T cells, activation is preferably detected by evaluating proliferation of the T cells. For CD8⁺ T cells, activation is preferably detected by evaluating cytolytic activity. A level of proliferation that is at least two fold greater and/or a level of cytolytic activity that is at least 20% greater than in disease-free patients indicates the presence of a cancer in the patient.

25 As noted above, a cancer may also, or alternatively, be detected based on the level of mRNA encoding an ovarian carcinoma protein in a biological sample. For example, at least two oligonucleotide primers may be employed in a polymerase chain reaction (PCR) based assay to amplify a portion of an ovarian carcinoma protein cDNA derived from a biological sample, wherein at least one of the oligonucleotide primers is 30 specific for (*i.e.*, hybridizes to) a polynucleotide encoding the ovarian carcinoma protein. The amplified cDNA is then separated and detected using techniques well

known in the art, such as gel electrophoresis. Similarly, oligonucleotide probes that specifically hybridize to a polynucleotide encoding an ovarian carcinoma protein may be used in a hybridization assay to detect the presence of polynucleotide encoding the tumor protein in a biological sample.

5 To permit hybridization under assay conditions, oligonucleotide primers and probes should comprise an oligonucleotide sequence that has at least about 60%, preferably at least about 75% and more preferably at least about 90%, identity to a portion of a polynucleotide encoding an ovarian carcinoma protein that is at least 10 nucleotides, and preferably at least 20 nucleotides, in length. Preferably,
10 oligonucleotide primers and/or probes hybridize to a polynucleotide encoding a polypeptide described herein under moderately stringent conditions, as defined above. Oligonucleotide primers and/or probes which may be usefully employed in the diagnostic methods described herein preferably are at least 10-40 nucleotides in length. In a preferred embodiment, the oligonucleotide primers comprise at least 10 contiguous
15 nucleotides, more preferably at least 15 contiguous nucleotides, of a DNA molecule having a sequence provided herein. Techniques for both PCR based assays and hybridization assays are well known in the art (see, for example, Mullis et al., *Cold Spring Harbor Symp. Quant. Biol.*, 51:263, 1987; Erlich ed., *PCR Technology*, Stockton Press, NY, 1989).

20 One preferred assay employs RT-PCR, in which PCR is applied in conjunction with reverse transcription. Typically, RNA is extracted from a biological sample such as a biopsy tissue and is reverse transcribed to produce cDNA molecules. PCR amplification using at least one specific primer generates a cDNA molecule, which may be separated and visualized using, for example, gel electrophoresis. Amplification
25 may be performed on biological samples taken from a test patient and from an individual who is not afflicted with a cancer. The amplification reaction may be performed on several dilutions of cDNA spanning two orders of magnitude. A two-fold or greater increase in expression in several dilutions of the test patient sample as compared to the same dilutions of the non-cancerous sample is typically considered
30 positive.

In another embodiment, ovarian carcinoma proteins and polynucleotides encoding such proteins may be used as markers for monitoring the progression of cancer. In this embodiment, assays as described above for the diagnosis of a cancer may be performed over time, and the change in the level of reactive polypeptide(s) evaluated. For example, the assays may be performed every 24-72 hours for a period of 5 6 months to 1 year, and thereafter performed as needed. In general, a cancer is progressing in those patients in whom the level of polypeptide detected by the binding agent increases over time. In contrast, the cancer is not progressing when the level of reactive polypeptide either remains constant or decreases with time.

10 Certain *in vivo* diagnostic assays may be performed directly on a tumor. One such assay involves contacting tumor cells with a binding agent. The bound binding agent may then be detected directly or indirectly via a reporter group. Such binding agents may also be used in histological applications. Alternatively, polynucleotide probes may be used within such applications.

15 As noted above, to improve sensitivity, multiple ovarian carcinoma protein markers may be assayed within a given sample. It will be apparent that binding agents specific for different proteins provided herein may be combined within a single assay. Further, multiple primers or probes may be used concurrently. The selection of tumor protein markers may be based on routine experiments to determine combinations 20 that results in optimal sensitivity. In addition, or alternatively, assays for tumor proteins provided herein may be combined with assays for other known tumor antigens.

DIAGNOSTIC KITS

The present invention further provides kits for use within any of the 25 above diagnostic methods. Such kits typically comprise two or more components necessary for performing a diagnostic assay. Components may be compounds, reagents, containers and/or equipment. For example, one container within a kit may contain a monoclonal antibody or fragment thereof that specifically binds to an ovarian carcinoma protein. Such antibodies or fragments may be provided attached to a support 30 material, as described above. One or more additional containers may enclose elements, such as reagents or buffers, to be used in the assay. Such kits may also, or alternatively,

contain a detection reagent as described above that contains a reporter group suitable for direct or indirect detection of antibody binding.

Alternatively, a kit may be designed to detect the level of mRNA encoding an ovarian carcinoma protein in a biological sample. Such kits generally 5 comprise at least one oligonucleotide probe or primer, as described above, that hybridizes to a polynucleotide encoding an ovarian carcinoma protein. Such an oligonucleotide may be used, for example, within a PCR or hybridization assay. Additional components that may be present within such kits include a second oligonucleotide and/or a diagnostic reagent or container to facilitate the detection of a 10 polynucleotide encoding an ovarian carcinoma protein.

The following Examples are offered by way of illustration and not by way of limitation.

EXAMPLES

Example 1Identification of Representative Ovarian Carcinoma Protein cDNAs

5

This Example illustrates the identification of cDNA molecules encoding ovarian carcinoma proteins.

Anti-SCID mouse sera (generated against sera from SCID mice carrying late passage ovarian carcinoma) was pre-cleared of E. coli and phage antigens and used 10 at a 1:200 dilution in a serological expression screen. The library screened was made from a SCID-derived human ovarian tumor (OV9334) using a directional RH oligo(dT) priming cDNA library construction kit and the λScreen vector (Novagen). A bacteriophage lambda screen was employed. Approximately 400,000 pfu of the amplified OV9334 library were screened.

15 196 positive clones were isolated. Certain sequences that appear to be novel are provided in Figures 1A-1S and SEQ ID NOS:1 to 71. Three complete insert sequences are shown in Figures 2A-2C (SEQ ID NOS:72 to 74). Other clones having known sequences are presented in Figures 15A-15EEE (SEQ ID NOS:82 to 310). Database searches identified the following sequences that were substantially identical to 20 the sequences presented in Figures 15A-15EEE.

These clones were further characterized using microarray technology to determine mRNA expression levels in a variety of tumor and normal tissues. Such analyses were performed using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions. PCR amplification products were arrayed on slides, with 25 each product occupying a unique location in the array. mRNA was extracted from the tissue sample to be tested, reverse transcribed and fluorescent-labeled cDNA probes were generated. The microarrays were probed with the labeled cDNA probes and the slides were scanned to measure fluorescence intensity. Data was analyzed using Synteni's provided GEMtools software. The results for one clone (13695, also referred 30 to as O8E) are shown in Figure 3.

Example 2Identification of Ovarian Carcinoma cDNAs using Microarray Technology

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This Example illustrates the identification of ovarian carcinoma polynucleotides by PCR subtraction and microarray analysis. Microarrays of cDNAs were analyzed for ovarian tumor-specific expression using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions (and essentially as described by 10 Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997).

A PCR subtraction was performed using a tester comprising cDNA of four ovarian tumors (three of which were metastatic tumors) and a driver of cDNA from five normal tissues (adrenal gland, lung, pancreas, spleen and brain). cDNA fragments 15 recovered from this subtraction were subjected to DNA microarray analysis where the fragments were PCR amplified, adhered to chips and hybridized with fluorescently labeled probes derived from mRNAs of human ovarian tumors and a variety of normal human tissues. In this analysis, the slides were scanned and the fluorescence intensity was measured, and the data were analyzed using Synteni's GEMtools software. In 20 general, sequences showing at least a 5-fold increase in expression in tumor cells (relative to normal cells) were considered ovarian tumor antigens. The fluorescent results were analyzed and clones that displayed increased expression in ovarian tumors were further characterized by DNA sequencing and database searches to determine the novelty of the sequences.

Using such assays, an ovarian tumor antigen was identified that is a 25 splice fusion between the human T-cell leukemia virus type I oncoprotein TAX (*see* Jin et al., *Cell* 93:81-91, 1998) and an extracellular matrix protein called osteonectin. A splice junction sequence exists at the fusion point. The sequence of this clone is presented in Figure 4 and SEQ ID NO:75. Osteonectin, unspliced and unaltered, was 30 also identified from such assays independently.

Further clones identified by this method are referred to herein as 3f, 6b, 8e, 8h, 12c and 12h. Sequences of these clones are shown in Figures 5 to 9 and SEQ ID NOS:76 to 81. Microarray analyses were performed as described above, and are presented in Figures 10 to 14. A full length sequence encompassing clones 3f, 6b, 8e and 12h was obtained by screening an ovarian tumor (SCID-derived) cDNA library. This 2996 base pair sequence (designated O772P) is presented in SEQ ID NO:311, and the encoded 914 amino acid protein sequence is shown in SEQ ID NO:312. PSORT analysis indicates a Type 1a transmembrane protein localized to the plasma membrane.

In addition to certain of the sequences described above, this screen
10 identified the following sequences:

Sequence	Comments
OV4vG11 (SEQ ID NO:313)	human clone 1119D9 on chromosome 20p12
OV4vB11 (SEQ ID NO:314)	human UWGC:y14c094 from chromosome 6p21
OV4vD9 (SEQ ID NO:315)	human clone 1049G16 chromosome 20q12-13.2
OV4vD5 (SEQ ID NO:316)	human KIAA0014 gene
OV4vC2 (SEQ ID NO:317)	human KIAA0084 gene
OV4vF3 (SEQ ID NO:318)	human chromosome 19 cosmid R31167
OV4VC1 (SEQ ID NO:319)	novel
OV4vH3 (SEQ ID NO:320)	novel
OV4vD2 (SEQ ID NO:321)	novel
O815P (SEQ ID NO:322)	novel
OV4vC12 (SEQ ID NO:323)	novel
OV4vA4 (SEQ ID NO:324)	novel
OV4vA3 (SEQ ID NO:325)	novel
OV4v2A5 (SEQ ID NO:326)	novel
O819P (SEQ ID NO:327)	novel
O818P (SEQ ID NO:328)	novel
O817P (SEQ ID NO:329)	novel
O816P (SEQ ID NO:330)	novel
Ov4vC5 (SEQ ID NO:331)	novel

Sequence	Comments
21721 (SEQ ID NO:332)	human lumican
21719 (SEQ ID NO:333)	human retinoic acid-binding protein II
21717 (SEQ ID NO:334)	human 26S proteasome ATPase subunit
21654 (SEQ ID NO:335)	human copine I
21627 (SEQ ID NO:336)	human neuron specific gamma-2 enolase
21623 (SEQ ID NO:337)	human geranylgeranyl transferase II
21621 (SEQ ID NO:338)	human cyclin-dependent protein kinase
21616 (SEQ ID NO:339)	human prepro-megakaryocyte potentiating factor
21612 (SEQ ID NO:340)	human UPH1
21558 (SEQ ID NO:341)	human RalGDS-like 2 (RGL2)
21555 (SEQ ID NO:342)	human autoantigen P542
21548 (SEQ ID NO:343)	human actin-related protein (ARP2)
21462 (SEQ ID NO:344)	human huntingtin interacting protein
21441 (SEQ ID NO:345)	human 90K product (tumor associated antigen)
21439 (SEQ ID NO:346)	human guanine nucleotide regulator protein (tim1)
21438 (SEQ ID NO:347)	human Ku autoimmune (p70/p80) antigen
21237 (SEQ ID NO:348)	human S-laminin
21436 (SEQ ID NO:349)	human ribophorin I
21435 (SEQ ID NO:350)	human cytoplasmic chaperonin hTRiC5
21425 (SEQ ID NO:351)	human EMX2
21423 (SEQ ID NO:352)	human p87/p89 gene
21419 (SEQ ID NO:353)	human HPBRII-7
21252 (SEQ ID NO:354)	human T1-227H
21251 (SEQ ID NO:355)	human cullin I
21247 (SEQ ID NO:356)	kunitz type protease inhibitor (KOP)
21244-1 (SEQ ID NO:357)	human protein tyrosine phosphatase receptor F (PTPRF)
21718 (SEQ ID NO:358)	human LTR repeat
OV2-90 (SEQ ID NO:359)	novel

Sequence	Comments
Human zinc finger (SEQ ID NO:360)	
Human polyA binding protein (SEQ ID NO:361)	
Human pleitrophin (SEQ ID NO:362)	
Human PAC clone 278C19 (SEQ ID NO:363)	
Human LLRep3 (SEQ ID NO:364)	
Human Kunitz type protease inhib (SEQ ID NO:365)	
Human KIAA0106 gene (SEQ ID NO:366)	
Human keratin (SEQ ID NO:367)	
Human HIV-1TAR (SEQ ID NO:368)	
Human glia derived nexin (SEQ ID NO:369)	
Human fibronectin (SEQ ID NO:370)	
Human ECMproBM40 (SEQ ID NO:371)	
Human collagen (SEQ ID NO:372)	
Human alpha enolase (SEQ ID NO:373)	
Human aldolase (SEQ ID NO:374)	
Human transf growth factor BIG H3 (SEQ ID NO:375)	
Human SPARC osteonectin (SEQ ID NO:376)	
Human SLP1 leucocyte protease (SEQ ID NO:377)	
Human mitochondrial ATP synth (SEQ ID NO:378)	
Human DNA seq clone 461P17 (SEQ ID NO:379)	
Human dbpB pro Y box (SEQ ID NO:380)	
Human 40 kDa keratin (SEQ ID NO:381)	
Human arginosuccinate synth (SEQ ID NO:382)	
Human acidic ribosomal phosphoprotein (SEQ ID NO:383)	
Human colon carcinoma laminin binding pro (SEQ ID NO:384)	

This screen further identified multiple forms of the clone O772P, referred to herein as 21013, 21003 and 21008. PSORT analysis indicates that 21003 (SEQ ID NO:386; translated as SEQ ID NO:389) and 21008 (SEQ ID NO:387; 5 translated as SEQ ID NO:390) represent Type 1a transmembrane protein forms of

0772P. 21013 (SEQ ID NO:385; translated as SEQ ID NO:388) appears to be a truncated form of the protein and is predicted by PSORT analysis to be a secreted protein.

Additional sequence analysis resulted in a full length clone for O8E
5 (2627 bp, which agrees with the message size observed by Northern analysis; SEQ ID NO:391). This nucleotide sequence was obtained as follows: the original O8E sequence (OrigO8Econs) was found to overlap by 33 nucleotides with a sequence from an EST clone (IMAGE#1987589). This clone provided 1042 additional nucleotides upstream of the original O8E sequence. The link between the EST and O8E was confirmed by
10 sequencing multiple PCR fragments generated from an ovary primary tumor library using primers to the unique EST and the O8E sequence (ESTxO8EPCR). Full length status was further indicated when anchored PCR from the ovary tumor library gave several clones (AnchoredPCR cons) that all terminated upstream of the putative start methionine, but failed to yield any additional sequence information. Figure 16 presents
15 a diagram that illustrates the location of each partial sequence within the full length O8E sequence.

Two protein sequences may be translated from the full length O8E. For "a" (SEQ ID NO:393) begins with a putative start methionine. A second form "b" (SEQ ID NO:392) includes 27 additional upstream residues to the 5' end of the nucleotide
20 sequence.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.

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SUMMARY OF SEQUENCE LISTING

SEQ ID NOs:1-71 are ovarian carcinoma antigen polynucleotides shown in Figures 1A-1S.

SEQ ID NOs:72-74 are ovarian carcinoma antigen polynucleotides
30 shown in Figures 2A-2C.

SEQ ID NO:75 is the ovarian carcinoma polynucleotide 3g (Figure 4).

SEQ ID NO:76 is the ovarian carcinoma polynucleotide 3f (Figure 5).

SEQ ID NO:77 is the ovarian carcinoma polynucleotide 6b (Figure 6).

SEQ ID NO:78 is the ovarian carcinoma polynucleotide 8e (Figure 7A).

SEQ ID NO:79 is the ovarian carcinoma polynucleotide 8h (Figure 7B).

5 SEQ ID NO:80 is the ovarian carcinoma polynucleotide 12e (Figure 8).

SEQ ID NO:81 is the ovarian carcinoma polynucleotide 12h (Figure 9).

SEQ ID NOs:82-310 are ovarian carcinoma antigen polynucleotides shown in Figures 15A-15EEE.

SEQ ID NO:311 is a full length sequence of ovarian carcinoma
10 polynucleotide O772P.

SEQ ID NO:312 is the O772P amino acid sequence.

SEQ ID NOs:313-384 are ovarian carcinoma antigen polynucleotides.

SEQ ID NOs:385-390 present sequences of O772P forms.

SEQ ID NO:391 is a full length sequence of ovarian carcinoma
15 polynucleotide O8E.

SEQ ID NOs:392-393 are protein sequences encoded by O8E.

CLAIMS

1. An isolated polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (b) complements of the foregoing polynucleotides.

2. A polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of 1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (b) complements of such polynucleotides.

3. An isolated polynucleotide encoding at least 5 amino acid residues of a polypeptide according to claim 1 polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391; and
- (b) complements of the foregoing polynucleotides

4. A polynucleotide according to claim 3, wherein the polynucleotide encodes an immunogenic portion of the polypeptide.

5. A polynucleotide according to claim 3, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOS:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.

6. An isolated polynucleotide complementary to a polynucleotide according to claim 3.

7. An expression vector comprising a polynucleotide according to claim 3 or claim 6.

8. A host cell transformed or transfected with an expression vector according to claim 7.

9. A pharmaceutical composition comprising a polypeptide according to claim 1, in combination with a physiologically acceptable carrier.

10. A pharmaceutical composition according to claim 9, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOS:1-81, 313-331, 359, 366, 379, 385-387 or 391.

11. A vaccine comprising a polypeptide according to claim 1, in combination with a non-specific immune response enhancer.

12. A vaccine according to claim 11, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOS:1-81, 313-331, 359, 366, 379, 385-387 or 391.

13. A pharmaceutical composition comprising:

(a) a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOS:1-81, 319-331, 359, 385-387 or 391; and
 - (ii) complements of the foregoing polynucleotides; and
- (b) a physiologically acceptable carrier.

14. A pharmaceutical composition according to claim 13, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOS:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.

15. A vaccine comprising:

(a) a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOS:1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (ii) complements of the foregoing polynucleotides; and

16. A vaccine according to claim 15, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOS:1-81, 319-331, 359, 385-387 or 391.

17. A pharmaceutical composition comprising:

- (a) an antibody that specifically binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
- (i) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and
 - (ii) complements of such polynucleotides; and
- (b) a physiologically acceptable carrier.

18. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of an agent selected from the group consisting of:

(a) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of such polynucleotides;

- (b) a polynucleotide encoding a polypeptide as recited in (a); and

- (c) an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of such polynucleotides;

and thereby inhibiting the development of ovarian cancer in the patient.

19. A method according to claim 18, wherein the agent is present within a pharmaceutical composition according to any one of claims 9, 13 or 17.

20. A method according to claim 18, wherein the agent is present within a vaccine according to any one of claims 11, 15 or 18.

21. A fusion protein comprising at least one polypeptide according to claim 1.

22. A polynucleotide encoding a fusion protein according to claim 21.

23. A pharmaceutical composition comprising a fusion protein according to claim 21 in combination with a physiologically acceptable carrier.

24. A vaccine comprising a fusion protein according to claim 21 in combination with a non-specific immune response enhancer.

25. A pharmaceutical composition comprising a polynucleotide according to claim 22 in combination with a physiologically acceptable carrier.

26. A vaccine comprising a polynucleotide according to claim 22 in combination with a non-specific immune response enhancer.

27. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a pharmaceutical composition according to claim 23 or claim 25.

28. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a vaccine according to claim 23 or claim 26.

29. A pharmaceutical composition, comprising:

(a) an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides; and

(b) a pharmaceutically acceptable carrier or excipient.

30. A vaccine, comprising:

(a) an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides; and

(b) a non-specific immune response enhancer.

31. A vaccine comprising:

(a) an anti-idiotypic antibody or antigen-binding fragment thereof that is specifically bound by an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of such polynucleotides; and
- (b) non-specific immune response enhancer.

32. A vaccine according to claim 30 or claim 31, wherein the immune response enhancer is an adjuvant.

33. A pharmaceutical composition, comprising:

(a) a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOS:1-387 or 391; and

- (ii) complements of such polynucleotides; and
- (b) a physiologically acceptable carrier.

34. A vaccine, comprising:

(a) a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOS:1-387 or 391; and

- (ii) complements of such polynucleotides; and
- (b) a non-specific immune response enhancer.

35. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a pharmaceutical composition according to claim 29 or claim 33.

36. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a vaccine according to any one of claims 30, 31 or 34.

37. A method for stimulating and/or expanding T cells, comprising contacting T cells with:

(a) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOS:1-387 or 391; and

(ii) complements of such polynucleotides;

(b) a polynucleotide encoding such a polypeptide; and/or

(c) an antigen presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.

38. A method according to claim 37, wherein the T cells are cloned prior to expansion.

39. A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a pharmaceutical composition comprising:

(a) one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one

or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

(b) a physiologically acceptable carrier or excipient;

and thereby stimulating and/or expanding T cells in a mammal.

40. A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a vaccine comprising:

(a) one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

(b) a non-specific immune response enhancer;
and thereby stimulating and/or expanding T cells in a mammal.

41. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared according to the method of claim 39 or claim 40.

42. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a) incubating CD4⁺ T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOS:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that T cells proliferate; and

(b) administering to the patient an effective amount of the proliferated T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

43. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a) incubating CD4⁺ T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOS:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that T cells proliferate;

(b) cloning one or more proliferated cells; and

(c) administering to the patient an effective amount of the cloned T cells.

44. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a) incubating CD8⁺ T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOS:1-387 or 391; and

complements of such polynucleotides;

- (ii) a polynucleotide encoding an ovarian carcinoma polypeptide; or
- (iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; such that T cells proliferate; and
- (b) administering to the patient an effective amount of the proliferated T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

45. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

- (a) incubating CD8⁺ T cells isolated from a patient with one or more of:
- (i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
polynucleotides recited in any one of SEQ ID NOS:1-387 or 391; and
complements of such polynucleotides;
- (ii) a polynucleotide encoding an ovarian carcinoma polypeptide; or
- (iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; such that the T cells proliferate;
- (b) cloning one or more proliferated cells ; and
- (c) administering to the patient an effective amount of the cloned T cells.

46. A method for identifying a secreted tumor antigen, comprising the steps of:

- (a) implanting tumor cells in an immunodeficient mammal;
- (b) obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum;
- (c) immunizing an immunocompetent mammal with the serum;
- (d) obtaining antiserum from the immunocompetent mammal; and
- (e) screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor antigen.

47. A method according to claim 46, wherein the immunodeficient mammal is a SCID mouse and wherein the immunocompetent mammal is an immunocompetent mouse.

48. A method for identifying a secreted ovarian carcinoma antigen, comprising the steps of:

- (a) implanting ovarian carcinoma cells in a SCID mouse;
- (b) obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum;
- (c) immunizing an immunocompetent mouse with the serum;
- (d) obtaining antiserum from the immunocompetent mouse; and
- (e) screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

49. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

- (a) contacting a biological sample obtained from a patient with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
 - (ii) complements of the foregoing polynucleotides;
- (b) detecting in the sample an amount of polypeptide that binds to the binding agent; and
 - (c) comparing the amount of polypeptide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

50. A method according to claim 49, wherein the binding agent is an antibody.

51. A method according to claim 50, wherein the antibody is a monoclonal antibody.

52. A method according to claim 49, wherein the cancer is ovarian cancer.

53. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
 - (ii) complements of the foregoing polynucleotides;
- (b) detecting in the sample an amount of polypeptide that binds to the binding agent;
- (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d) comparing the amount of polypeptide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

54. A method according to claim 53, wherein the binding agent is an antibody.

55. A method according to claim 54, wherein the antibody is a monoclonal antibody.

56. A method according to claim 53, wherein the cancer is ovarian cancer.

57. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOS:1-387 or 391; and

(ii) complements of the foregoing polynucleotides;

(b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and

(c) comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

58. A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

59. A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

60. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOS:1-387 or 391; and

(ii) complements of the foregoing polynucleotides;

(b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide;

(c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d) comparing the amount of polynucleotide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

61. A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

62. A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

63. A diagnostic kit, comprising:

(a) one or more antibodies or antigen-binding fragments thereof that specifically bind to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides.; and

(b) a detection reagent comprising a reporter group.

64. A kit according to claim 63, wherein the antibodies are immobilized on a solid support.

65. A kit according to claim 63, wherein the solid support comprises nitrocellulose, latex or a plastic material.

66. A kit according to claim 63, wherein the detection reagent comprises an anti-immunoglobulin, protein G, protein A or lectin.

67. A kit according to claim 63, wherein the reporter group is selected from the group consisting of radioisotopes, fluorescent groups, luminescent groups, enzymes, biotin and dye particles.

68. A diagnostic kit, comprising:

(a) an oligonucleotide comprising 10 to 40 nucleotides that hybridize under moderately stringent conditions to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides; and

(b) a diagnostic reagent for use in a polymerase chain reaction or hybridization assay.

SEQUENCE LISTING

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<120> COMPOSITIONS AND METHODS FOR THE THERAPY AND
DIAGNOSIS OF OVARIAN CANCER

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cacntgagaa agagctgatt	ttgttatttca ggtttggaaaa	gaaataactg aacatatttt	600
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<210> 20

<211> 448
<212> DNA
<213> Homo sapien

<400> 20

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ttgaatggaa actgtttggg	tttagggcat cttagagttg	attgtatggaa aaagcagaca	180

ggaactggtg ggaggtcaag tgggaagtt ggtgaatgtg gaataactta cctttgtgct	240
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ctctcattaa taaattgaat aaaagggaaat gtttggcac ctgatataat ctgccaggct	360
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<210> 21	
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aaaggcatac ttcggaatc gccaaatctaa actttctaa cttctgtctc tctcagagac	240
aagtgagact caagagtcta ctgcttagt ggcaactaca gaaaactggt gttacccaga	300
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<212> DNA	
<213> Homo sapien	
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<223> n = A,T,C or G	
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ctgcgcatcc tccagcgccc gtccttctg ccgcacaagg ccctgcagac gcagattctc	540
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<210> 23	
<211> 111	
<212> DNA	
<213> Homo sapien	
<400> 23	
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<210> 24
 <211> 531
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(531)
 <223> n = A,T,C or G

<400> 24

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ttctgcac	cttgcac	aggtgatcca	cctgcctcg	cctcccaaag	tgttggatt	300
gctacc	cctggccagc	cactggagtt	taaaggacag	tcatgttggc	tccagctaa	360
ggcggcattt	tcccccattca	gaaagccgc	ggctcctgt	cctcaaaaata	gggcacctgt	420
aaagtca	agtgaagtct	ctgctcta	tggccacccg	gggccattgg	cntctgacac	480
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<210> 25
 <211> 471
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(471)
 <223> n = A,T,C or G

<400> 25

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gggacttggg	gagcgtgcag	agacctctag	ctcgagcg	agggacctcc	cgccggatg	180
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actccttgcc	tgataattga	agattctcag	cctgaaagcc	aggttctaga	ggatgattct	300
ggttctact	tca	atctcgac	cttccta	tccagacg	caaagaaaat	360
cctgtgttgg	atgttngt	caatc	ttga	acaaacag	ggagaagaac	420
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<210> 26
 <211> 541
 <212> DNA
 <213> Homo sapien

<400> 26

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atactgtt	ttt	attgtct	ctgg	tcaaa	ccatcaga	180
gtgacttctg	g	aatctgc	cttcc	taagg	tgacaaa	240
cttccatagc	g	ccacttcca	tgc	ggat	tcaggct	300
gtggat	ttt	gat	cttact	gg	cttgc	360
ccttgctgga	cttgc	atgggat	atgggat	gtc	cttgc	420

cagtatttagc atccacatca gacagcctgg tataaccaga gttgggtggtt actgattgta	480
gctgctctt gtccacttca tatggcacaa gtatttcct caacatcctg gctctggaa	540
g	541
<210> 27	
<211> 461	
<212> DNA	
<213> Homo sapien	
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<221> misc_feature	
<222> (1)...(461)	
<223> n = A,T,C or G	
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cctcaattca agcagtcatt gtccttgctt tcaaaaagctt gtgtgtgctt catggaaggt	240
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gtaagaaaac ctgagctaga actcaaggcat ttcttttaca gaacttggct tgcaggtag	360
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cataggcctt gcaactctgt tcactgagag atgttattcct g	461
<210> 28	
<211> 541	
<212> DNA	
<213> Homo sapien	
<400> 28	
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aactagacaa gtgtgttaag agtgataagt aaaatgcacg tggagacaag tgcattcccc	180
gatctcaggg acctccccct gcctgtcacc tggggaggtga gaggacagga tagtgcattgt	240
tctttgtctc tgaattttta gttatatgtg ctgttatgtt gctctgagga agcccttgga	300
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c	541
<210> 29	
<211> 411	
<212> DNA	
<213> Homo sapien	
<400> 29	
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tgtcatccat attctggac tcaggcgga actttctgaa atattgccag ggagcatggc	180
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agagcccaag aaatgttagtc ctgttgatat gttttgctg tgtcccaacc caaatctcat	360
cttgaattgt aagctcccat aattccatg tttttgtggaa gggacctgggt g	411

<210> 30
<211> 511
<212> DNA
<213> Homo sapien

<400> 30
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<210> 31
<211> 827
<212> DNA
<213> Homo sapien

<400> 31
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<210> 32
<211> 291
<212> DNA
<213> Homo sapien

<400> 32
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ccacagcagt cagttggtca ggcctgtt tagaagggtca cttggctcca ttgcctgttt 180
ccaaaccaatg ggcaggagag aaggccctta tttctcgccc acccattctc ctgtaccaggc 240
acccctccgttt tcagtcagtg ttgtccagca acggtaccgt ttacacagtc a 291

<210> 33
<211> 491
<212> DNA
<213> Homo sapien

<400> 33

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gaacatcact cacttcccct acttgatcta caaggccaac gccgagagcc cagaccagga	120
ttccaaacac actgcacgag aatattgtgg atccgctgtc aggttaagtgt ccgtcaactga	180
cccaracgct gttacgtggc acatgactgt acagtgccac gtaacagcac tgtactttc	240
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aaaaatgctg gggggggcca ggcacagctt cacgcctgta atcccagcac tttgggaggc	480
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<210> 34	
<211> 521	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(521)	
<223> n = A,T,C or G	
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aagtaacaag tggcaccagt ctgcagattt gcaaggatgt catggatgcc ctcattctga	300
aatggcaag aaatggaaaaa gtacactta gaaaataaaag aggaaggatc actctcagat	360
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<210> 35	
<211> 161	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(161)	
<223> n = A,T,C or G	
<400> 35	
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g c c g c c g c c g t g c t g c c g t g c t g c t g c c g t g c t g c c	161
<210> 36	
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<212> DNA	
<213> Homo sapien	
<400> 36	
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cttattattag cagtgaggag cagaaggcagc tgatgtgtat cttatcacaga agacaagagg	180

agctcaagag attggaagaa aatgatgatg atgccttattt aaactcacca tggcggtata acactgcttt gaaaagacat tttcatggag tgaaagacat aaagtggaga ccaagatgaa gttaccacgc tgatgacact tccaaagaga ttagctcacc t	240 300 341
<210> 37	
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<212> DNA	
<213> Homo sapien	
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<223> n = A,T,C or G	
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<210> 40
<211> 292
<212> DNA
<213> Homo sapien

<400> 40	
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tgggcctcct gatcttaaca agccatgctc attatacaca tctctgaact ggacatacca	180
cctttacgca gaaaaacaggg cttggaaactt ctaaggaaa ttaacatgca ccacccacat	240
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<210> 41
<211> 406
<212> DNA
<213> Homo sapien

<400> 41	
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<210> 42
<211> 381
<212> DNA
<213> Homo sapien

<400> 42	
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tcgcaccaggc caaggcttaa ctgcctgcct gaccctgaac cagaacccag ctgaactgcc	240
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ccctgctggg gagaatgaca catcaagctg ctaacaattt gggaaagggg aaggaagaaa	360
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<210> 43
<211> 451
<212> DNA
<213> Homo sapien

<400> 43	
catgcgttc accactgttg gccaggctgg tctcgaactc ctggcctcaa gcaatccacc	60
cgcctcagcc tccaaaagtgtt ctgggattac agatgtgagc catggcacca tgccaaaagg	120
ctatattcct ggctctgtgt ttccgagact gcttttaatc ccaacttctc tacattnaga	180
ttaaaaaata ttttattcat ggtcaatctg gaacataatt actgcattt aagttccac	240

tgatgtatat agaaggctaa aggacacaatt tttatcaaatt ctagtagagt aaccacacat	300
aaaatcatta attacttca acttaataac taattgacat tcctcaaaag agctgtttc	360
aatcctgata gtttcttat ttttcaaaa tatatttgcc atggatgct aatttgaat	420
aaggcgata atgagaatac cccaaactgg a	451

<210> 44
<211> 521
<212> DNA
<213> Homo sapien

<400> 44

gttggacccc cagggactgg aaagacactt cttgcccggag ctgtggcgggg agaagctgat	60
gttcctttt attatgcttc tggatccgaa tttgatgaga tggttgcggg tggggagcc	120
agccgtatca gaaatcttt taggaagca aaggcgaatg ctcctgtgt tatattttt	180
gatgaattag attctgttgg tggaaagaga attgaatctc caatgcattcc atattcaagg	240
cagaccataa atcaacttct tgctgaaatg gatggttta aacccatga aggagttatc	300
ataatagtag ccacaaactt cccagaggca ttagataatg ccttaatacc gtcctgtcg	360
ttttgacatg caagttacag ttccaaggcc agatgtaaaa ggtcaacag aaatttgaa	420
atggatctc aataaaataa agtttgcata atcccgatca tccagaaatt atagcctcga	480
gttactggtg gctttccgg aagcagagtt gggagaatct t	521

<210> 45
<211> 585
<212> DNA
<213> Homo sapien

<400> 45

gcctacaaca tccagaaaaga gtctaccctg cacctggtgc tscgtctcag aggtggatg	60
cagatctcg tgaagaccct gactggtaag accatcactc tcgaagtggaa gccgagtgac	120
accatygaga acgtcaaagc aaagatccar gacaaggaag gcrycctcc tgaccagcag	180
aggttgcatt ttgccggaaa gcaactggaa gatggdcgca ccctgtctga ctacaacatc	240
cagaaagagt cyaccctgca cctggtgctc cgtctcagag gtggatgca ratcttcgtg	300
aagaccctga ctggtaagac catcaccctc gaggtggagc ccagtgcacatcagaaat	360
gtcaaggcaa agatccaaga taaggaaaggc atccctctg atcagcagag gttgatctt	420
gctggaaac agctggaaaga tggacgcacc ctgtctgact acaacatcca gaaagagtcc	480
actctgcact tggccctgca cttgaggggg ggtgtctaag tttcccttt taaggtttcm	540
acaaatttca ttgcactttc cttcaataa agttgttgca ttccc	585

<210> 46
<211> 481
<212> DNA
<213> Homo sapien

<400> 46

gaactgggcc ctgagccaa gtcatgcctt gtgtccgcac ctggcggtc acctctgtkc	60
ctggccctca cccctccctc ctggcttttct gagccagcac catctccaaa tagccttattc	120
cttccctgcaa atcacacaca catgcgggccc acacataacct gctgccctgg agatggggaa	180
gtaggagaga tgaatagagg cccatacatt gtacagaagg agggcaggt gcagataaaa	240
gcagcagacc cagcggcagc tgagggtgcac ggagcacggg tggggccggc attgggtgaa	300
gcacctgatg ggcctcatct cgtgaatcct cgaggcagcg ccacagcaga ggagttaaat	360
ggcacctggg cccgagcagag caggagactg agggcagag tggaggctaa gtcgcctgg	420
aactccctcaa tcttgcctgc ccccttagtat gaagccccct tcctgccccct acaattccctg	480
a	481

<210> 47

<211> 461
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(461)
 <223> n = A,T,C or G

<400> 47

atggatctta	cttgcacc	cagggtggag	tgcagtgcg	caatcttgc	tcactgcagc	60
cttaacctcc	caggctcaag	ctatccct	gccaaagcct	tccacatagc	tggtactaca	120
ggtacacngc	caccacaccc	agctaaaatt	tttgtatTTT	ttgttagagac	gggatctcg	180
cacgttgc	aggctggtcc	catcctgacc	tcaagcagat	ctgcccac	cagcccccca	240
acgtgttgc	attacaggcg	tgagccacc	cacccagcct	ttgttttgct	tttaatggaa	300
tcaccagt	ccctccgtgt	ctcagcagca	gctgtgagaa	atgccttgca	tctgtgac	360
ttatgaagg	gaacttccat	gctgaatgag	ggttaggatta	catgctcctg	tttcccggg	420
gtcaagaaag	cctcagactc	cagcatgata	agcagggtga	g		461

<210> 48
 <211> 571
 <212> DNA
 <213> Homo sapien

<400> 48

ataggggctt	taaggaggga	attcaaggttc	aatgagggtcg	taaggccagg	gctcttatcc	60
agtaagactg	gggtccttag	atgagaaaaga	gacaccgcag	gtccttctct	ctgcccgtgt	120
aggatgcac	aagaaggcgg	ccgtctgcaa	gCGAAGGAGA	ggccgcacca	gaaaccgaca	180
ccttcatctt	ggacttgcag	cctctagaac	tgagaaaata	actgtctgtt	ggtaaggcca	240
cccagtgtt	atgattctct	tatggcttcc	taagcagact	aacaaacaaa	cacccaaat	300
taactgatgg	cttcgctgtc	ttctgtaaaa	attgctatga	gagaactttt	cactcactgt	360
tttgcagttt	ctccctcagt	ccctggttct	ttcttctcac	ataatccaa	tttcaattta	420
tagttcatgg	cccaggcaga	gtcattcattc	acggcatctc	ctgagctaaa	ccagcacctg	480
ctctgctcac	ttcttgactg	gctgtcattc	atcagccctc	ttgcagagat	ttcatttcct	540
cccgtgccag	gtacttcacg	caccaagctc	a			571

<210> 49
 <211> 511
 <212> DNA
 <213> Homo sapien

<400> 49

ggataatgaa	gttgttttat	ttagcttgg	aaaaaggca	tattcctcta	ttttcttata	60
caacaaatat	ccccaaaata	aagcaagcat	atatatctt	aatgtgtat	aatccagtga	120
taaacaagag	cagtacttta	aaagaaaaaa	aaatatgtat	ttctgtcagg	ttaaaatgag	180
aatcaaaacc	atttactctg	ctaactcatt	ttttttgt	ttcttttgg	ttaagagagg	240
caatgcaata	cactgaaaaa	ggttttatac	ttatctggca	ttgaaattag	acatattcaa	300
accccagccc	ccatttccaa	actttaagac	cacaaacaag	taatttactt	ttctgaacat	360
tggtttttc	tggaaaatgg	gaattataaa	atagactt	cagactctt	tgagattaaa	420
taagataatg	tatgaaattc	tttcttctt	tttacttctt	tttcctttt	gagatggagt	480
ctcaccccg	cacccaggct	ggagtacagt	g			511

<210> 50
 <211> 561
 <212> DNA

<213> Homo sapien

<400> 50

ccactgcact ccagcctggg tgacggagt g	agactctgtc tcaaaaaaac aaacaacaa	60
acaaacaaaa aactgaaaag gaaatagat tcctttcc tcataatga atatattatt		120
tcaacagatt gttgatcacc taccatatgc ttggtatgt tctaattgct ggggatacag		180
caagagggttc tgcagaacct catggagcat gaaagtaat aaacaaagtt aatttcaagg		240
ccaggcatgg ttgctcacac cttagtccc agcacttgg gaggctgagg caggtggatc		300
acttgggcc aggagttcaa ggctgcagt gccaagatt gtgccactac tctccaggct		360
ggcacaacaga gcaagaccct gtctcagggg gaacaaaaag ttaatttcag attttggtaa		420
gtgctgtaaa ggaagtaat aggttgat tcaagagagc acctgaaggc caggcgtgg		480
ggctcacgccc tggctctaa cgcttggg agcccgagcg ggccgatcac aaggtcagga		540
gaattttggc caggcatggt g		561

<210> 51

<211> 451

<212> DNA

<213> Homo sapien

<400> 51

agaatccatt tattgggttt taaactagtt acacaactga aatcagtttgcactacttt	60
atacagggt tacgcctgtg tatggcgaca cttaaataact gtaccaggac cactgctgtg	120
cttaggtctg tattcagtc ttcagcatgt agataactaaa aatatactgt agtgtccctt	180
taaggaagac tgtacaggggt gtgttgcag atgacatcca ccaatttgc aattatttca	240
acccagaaga taccttcac tctataaact tgcataaggc aaacatgtgg tgtagcatt	300
gagagatgca cacaaaaatg ttacataaaa gttcagacat tctaattgata agtgaactga	360
aaaaaaaaaaa aaccccacat ctcaattttt gtaacaagat aaagaaaata atttaaaaac	420
acaaaaaatg gcattcagtg ggtacaaagc c	451

<210> 52

<211> 682

<212> DNA

<213> Homo sapien

<400> 52

caaataatttata atataaatct ttgaaacaag ttcagakgaa ataaaaatca aagtttgcaa	60
aaacgtgaag attaacttaa ttgtcaaata ttcttcattt ccccaatca gtattttttt	120
tatttctatg caaaagtatg cttcaaaact gcttaatga tataatgat tataatgat gatacacaaa	180
ccagtttca aatagtaaag ccagtcatct tgcaatttgc agaaataggt aaaagattat	240
aagacaccc acacacacac acacacacac acacacacgt gtgcaccgccc aatgacaaaa	300
aacaatttgg cctctcctaa aataagaaca tgaagacccct taatttgc caggaggaa	360
cactgtgtca cccctccctt caatccagg agtttccctt aatccaatag caaatctggg	420
catatttgcagg aggtgttctt ctgacagccca csgttgaaat cctgtgggg accattccatg	480
tccacccact ggtcccttga aaaaatgcca ataatttttgc tgcactt ctgctgtgt	540
cttccacata tcctcacata gacccagac ccgctggccc ctgctgggc atcgcattgc	600
tggtagagca agtcataggt ctcgtctttg acgtcacaga agcgatacac caaatttgc	660
ggtcggtcat tgcataacc ag	682

<210> 53

<211> 311

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(311)

<223> n = A,T,C or G

<400> 53

tttgacttta	gtaggggct	gaactattta	ttttactttg	ccmgtaatat	ttaraccyta	60
tatatactt	tcattatgc	catttatctt	aatgbcaagg	gaacagwtgc	taamctggct	120
tctgcattwa	tcacattaa	aatggctt	ttggaaaatc	ttcttgat	gaataaagga	180
tctttavag	ccatcattt	aagcmggntt	ctctccaaca	cgagtctgct	sasggggggk	240
gagctgtgaa	ctctggctg	aggcttccc	atacacactg	caatgacmtg	gtttctgacc	300
agbgtgagtt	a					311

<210> 54

<211> 561

<212> DNA

<213> Homo sapien

<400> 54

agagaagccc	cataaaatgca	atca	gtgtgg	gaaggcc	ttc	agtc	agagct	caagcc	tttt	60	
cctccatcat	cggttcata	ctgg	gagagaa	acc	ctatgt	ta	tgtaat	gat	gcggc	agagc	120
ctttgg	ttt	aact	ctc	atc	tt	ta	ctgt	gat	cc	ctt	180
tg	tt	gtaat	gag	tcg	tcg	tcg	act	ttt	cc	ttc	240
at	gg	gat	gg	ttc	ttc	ttc	act	ttt	cc	cc	300
tt	gg	gg	gg	gg	gg	gg	ttt	gg	cc	cc	360
tt	gg	gg	gg	gg	gg	gg	ttt	gg	cc	cc	420
tt	gg	gg	gg	gg	gg	gg	ttt	gg	cc	cc	480
tt	gg	gg	gg	gg	gg	gg	ttt	gg	cc	cc	540
tt	gg	gg	gg	gg	gg	gg	ttt	gg	cc	cc	561

<210> 55

<211> 811

<212> DNA

<213> Homo sapien

<400> 55

gagacagggt	ctcactttgt	cacc	cagg	gt	aat	gc	agt	gt	atc	tc	60
actgcagccc	tgac	cc	tc	tc	ca	cc	ct	ca	gt	tc	120
ggactgtggg	tgca	cat	gc	ta	act	ttt	ttt	gt	at	ttt	180
tttgccatgt	tgca	cat	gc	ta	act	ttt	ttt	gt	at	ttt	240
cctcccagaa	tgttgg	ac	agg	gt	acc	acc	acc	cc	cc	cc	300
tttagcatcca	cttg	ct	gt	ct	act	gag	at	aa	gat	act	360
at	ttt	ttt	ttt	ttt	ttt	ttt	ttt	ttt	ttt	ttt	420
tttagtttcc	ttt	ta	act	gt	a	taaaaa	aa	tt	ttt	ttt	480
agagataacc	ggc	ca	tca	tt	cc	ttt	ttt	cc	ttt	ttt	540
gaggtgcagg	at	aa	agg	cc	tt	ttt	ttt	cc	ttt	ttt	600
cctgttgct	gaca	aa	at	gt	ttt	ttt	ttt	cc	ttt	ttt	660
acgctgtcaa	ttt	ttt	cc	acc	ttt	ttt	ttt	cc	ttt	ttt	720
gtccttggc	aaa	aa	gt	ta	ttt	ttt	ttt	cc	ttt	ttt	780
gaacccctgg	gacc	gg	act	ttt	ttt	ttt	ttt	cc	ttt	ttt	811

<210> 56

<211> 591

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(591)
 <223> n = A,T,C or G

<400> 56

atctcatata tatatttctt cctgacttta tttgcttgct tctgnacacgc atttaaaata	60
tcacagagac caaaaatagag cggcttctg gtggaacgca tggcagtcac aggacaaaat	120
acaaaaactag ggggctctgt cttctcatac atcataacaat ttcaagtat ttttttatg	180
tacaaaagagc tactctatct gaaaaaaaaat taaaaaataa atgagacaag atagttatg	240
catccttagga agaaaagaatg ggaagaaaaga acggggcagt tggcacaga ttccctgtccc	300
ctgttcccag ggaccactac cttctgcca ctgagttccc ccacagcctc acccatcatg	360
tcacagggcg agtgccagg tagggggga ccagtggaga cagaaccag caacataactt	420
tggcctggaa gataaggaga aagtctcaga aacacactgg tggaaagcaa tcccacngc	480
cgtccccan gagcttcca cctgctgctg gctccctggg tggcttggg aacagcttgg	540
gcagggccctt ttgggtgggg nccaaactggg cctttggcc cgtgtggaaa g	591

<210> 57

<211> 481
 <212> DNA
 <213> Homo sapien

<400> 57

aaacatttag atggaatgat agggttccc agaatcaggt ccatatttta actaaatgaa	60
aattatgatt tatagccttc tcaaataacct gccatacttg atatctcaac cagagcta	120
tttaccttctt tacaaattaa ataagcaagt aactggatcc acaatttata ataccgtca	180
atttttctg tattaaacct cttatcatgt ttaagcctat tagggtactt aatccttaca	240
aataaacagg tttaaaatca cctcaatagg caactgcct tctgggtttc ttctttgact	300
aaacaatctg aatgcttaag atttccact ttgggtgcta gcagtcacaca gtgttacact	360
ctgtattcca gacttcttaa attatagaaa aaggaatgta cacttttgt attcttctg	420
agcagggccg ggaggcaaca tcatctacca tggtagggac ttgtatgcat ggactacttt	480
a	481

<210> 58

<211> 141
 <212> DNA
 <213> Homo sapien

<400> 58

actctgtcgc ccaggctgga gcccabtggm gcgatctcga ctccctgcaa gctmcgcctc	60
acaggwtcat gccattctcc tgcctcagca tctggagtag ctgggactac aggccgcagc	120
caccatgccc agctaatttt t	141

<210> 59

<211> 191
 <212> DNA
 <213> Homo sapien

<400> 59

accttaaaga cataggagaa tttatactgg gagagaaagc ttacaaatgt aaggttctg	60
acaagacttg ggagtgattc acacctggaa caacatactg gacttcacac tggabagaaa	120
ccttacaagt gtaatgagtg tggcaaagcc tttggcaagc agtcaacact tattcaccat	180
caggcaattc a	191

<210> 60

<211> 480

<212> DNA

<213> Homo sapien

<400> 60

agtcaggatc atgatggctc agttccac acgcgtaat ggaggccaa atatgtggc	60
tattacatct gaagaacgta ctaagcatga taaacagtta gataacctca aacccagg	120
aggttacata acagggtatc aagccgtac tttttcccta cagtcaggc tgccggcccc	180
gttttagct gaaatatggg ctttatcaga tctgaacaag gatggaaaga tggaccagca	240
agagttctct atagctatga aactcatcaa gttaaagtgt cagggccaac agctgcctgt	300
agtcctccct cctatcatga aacaacccccc tatgttctct ccactaatct ctgctcg	360
tggatggaa agcatgccc atctgtccat tcatacgcca ttgcctccag ttgcacccat	420
agcaacaccc ttgtttctgt ctacttcagg gaccagtatt cctccctaat gatgcctgct	480

<210> 61

<211> 381

<212> DNA

<213> Homo sapien

<400> 61

cttcgattt cctcaattt gtcacgtttg attttatgaa gttgttcaag ggcttaactgc	60
tgtgtattat agctttctct gagttccctc agctgattgt taaatgaatc catttctgag	120
agcttagatg cagttttttt ttcaagagca tctaattgtt cttaagtct ttggcataat	180
tcttcctttt ctgatgactt tctatgaatg aaactgatcc ctgaatcagg tgtgttactg	240
agctgcatgt tttaattct ttcggttaat agctgctct cagggaccag atagataagc	300
ttattttgat attccttaag ctcttggta agttgttgcg tttccataat ttccaggctca	360
cactggatcc cccaaacttc t	381

<210> 62

<211> 906

<212> DNA

<213> Homo sapien

<400> 62

gtggagggtga aacggaggca agaaaggggg ctacctcagg agcgaggcac aaaggggcg	60
tgaggcacct aggccgcggc accccggcga caggaagccg tcctgaaccg ggctaccggg	120
taggggaagg gcccgcgtag tcctcgcagg gccccagagc tggagtcggc tccacagccc	180
cggccgcgtcg gcttctcact tcctgaccc cccggcgcg cggccctgag gactggctcg	240
gcggaggagg aagaggaaac agacttgagc agctcccgat tgcgtcgcaa ctccactgccc	300
gaggaactct catttcttcc tcgcgtccctt caccggccac ctcatgtaga aaggtgctga	360
agcgtccgga ggaagaaga acctggctca cgcgtctggc cttcccmccc cttcccccgg	420
gcgttttgtt gggcgtggag ttgggttgg ggggggtgggt ggggggttctt ttttggatgt	480
ctggggaaact ttttccctt cttcaaggta ggggaaaggaa aatgcccatt tcagagagac	540
atgggggcaaa gaaggacggg agtggaggag cttctggAAC tttgcagccg tcatacgggag	600
gcggcagctc taacagcaga gagcgtcacc gcttggatc gaagcacaag cggcataaagt	660
ccaaacactc caaagacatg ggggttgtga ccccccgaagc agcatccctg ggcacagttt	720
tcaaacctt ggtggagttt gatgatatac gctctgattc cgacacccctc tccgatgaca	780
tggccttcaa actagaccga agggagaacg acgaacgtcg tggatcagat cggagcggacc	840
gcctgcacaa acatcgacacc caccacgaca ggcgttcccg ggacttacta aaagctaaac	900
agacccg	906

<210> 63

<211> 491

<212> DNA

<213> Homo sapien

<400> 63

gacatgtttg cctgcagggg accagagaca atgggattag ccagtgctca ctgttctta	60
tgctccaga gaggatgggg acagctctca ggtcagaatc caggctgaga aggccatgct	120
ggttggggc ccccgaaagc acggccgga tcctccctgg catcagcgta gaccgcgtc	180
tcaggcttgg gtagccaaac tcatgctctg tactgtttg gccccatgct gtgagaggaa	240
aacctagaaa aagattggtc gtgctaagga atcagctgcc ccctcatcct ccgcattcaa	300
tgctgggtac aacatattcc ctctcccagg acacagactc ggtgactcca cactgggctg	360
agtggcctct ggaggcttgt ggcctaaggc agggctccgt aaggtgatc ggctgaactg	420
ggtggggta gggttctga cccttcgctt cccatcccat aaccgctgtc aatgagctca	480
cactgtggta a	491

<210> 64

<211> 511
 <212> DNA
 <213> Homo sapien

<400> 64

gatggcatgg tcgttgcataa tgtgcctgct gggatggagc acttcctcct gtgagccag	60
gggacccgccc tgcccttggc gcttggggca aggagggaaag atgtatacca ggaagggtgg	120
gctgcagcca ggggccagag tcagttcagg gagtggtctt cggccctcaa agtcctccg	180
gggactgctc aggagtgtatg gtgccttgg gtttgcctt acttccttgg ccacccttgg	240
aggtgcctgg ctgctccagg cctetaggct gggctgtatgg gtttctccag gacacaagta	300
tcattaaagc caccctctcc tcagttgtc aggccgcaca tgtgggacag gctgtgctca	360
caacccttc gcctgcctt ccetccatca ggaggagcca gtgaaacctt cggaaagctc	420
ccagcatctc agcagccctc aaaagtgcgtc ctggggcaag ctctggttct cctgacttgg	480
ggtcatctgg gcttggcctt ctctctctcg c	511

<210> 65

<211> 394
 <212> DNA
 <213> Homo sapien

<400> 65

taaaaaagtgt taacaaaggta ttattttagac ttcttcataa ccccccagatc caggatgtct	60
atgtaaaccgttatacttaca aagaaagcac aatatttggta ataaactaaatc tcaatgtactt	120
gcttaactga aatagcgtcc atccaaaatgtt gggtttaagg taaaactacc tgcgtatatt	180
ggcggggatc ctgcagtttgc gactgcttgc cgggtttgtc caggggttccg ggtctgttct	240
tggcactctcat ggggacagggc atcctgctcg tctgtggggc cccctggag cccttacgtc	300
aagctgaagg tatcgaccst agggggctct agggcagtgg gaccttcatac cggaactaac	360
aagggtcggtt gagaggcctc ttgggtatgt tggg	394

<210> 66

<211> 359
 <212> DNA
 <213> Homo sapien

<400> 66

caagcggttcc ttatggatgt taaattcaaa cagtcataatc gagccatccc gggctgacag	60
tcacgttwaagacacttaggt cggggccac agtgcaccc aaggagaaga agaatttgta	120
attttccat gaagatgtac ggaaatctga tttgtatataat gaaaatggcc cccaaatggta	180
atccaaaatgttaccacag gggctgttaag acctagtgtac cctcctaagt gggaaagagg	240
aatggagaat agtatttctgt atgcataatc aacatcagaa tataaaactg agatcataat	300
gaaggaaaat tccatatacca atatgagttt actcagagac agtagaaactt attcccagg	359

<210> 67

<211> 450

<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(450)
<223> n = A,T,C or G

<400> 67

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<210> 68
<211> 511
<212> DNA
<213> Homo sapien

<400> 68

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<210> 69
<211> 511
<212> DNA
<213> Homo sapien

<400> 69

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<210> 70
<211> 511
<212> DNA
<213> Homo sapien

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<212>	DNA					
<213>	Homo sapien					
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<212>	DNA					
<213>	Homo sapien					
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<210> 73
<211> 414
<212> DNA
<213> Homo sapien

<400> 73	
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aaaaaacagg agcaattaga aatggtcca atatttcaaa gctccgcaaa caggatgtgc	360
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<210> 74
<211> 1567
<212> DNA
<213> Homo sapien

<400> 74	
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gcatccccag atctcaggga cctccccctg cctgtcacct gggaggttag aggacaggat	240
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<211> 240	
<212> DNA	
<213> Homo sapien	
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ggaagacctg ggggaaaaca ccatggttt atccaccctg agatcttga acaacttcat	180
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<210> 76	
<211> 330	
<212> DNA	
<213> Homo sapien	
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<223> n = A,T,C or G	
<400> 76	
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<210> 77	
<211> 361	
<212> DNA	
<213> Homo sapien	
<400> 77	
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<211> 356	
<212> DNA	
<213> Homo sapien	
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<221> misc_feature
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<223> n = A,T,C or G

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ggcagccact ggagtggacg ccatctgcac cctccgcctt gatcccactg gtcctggact   300
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<210> 79
<211> 226
<212> DNA
<213> Homo sapien

<400> 79
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catttaatac acctaacgta tcgaacatca tagttggcc cagttatct catatgtgct   180
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<210> 80
<211> 444
<212> DNA
<213> Homo sapien

<220>
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<222> (1)...(444)
<223> n = A,T,C or G

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<210> 81
<211> 310
<212> DNA
<213> Homo sapien

<400> 81
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gatcagtcag actggctgtt ctcagttctc acctgagcaa ggtcagtcgt cagccagagt  180
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ttgggtatgg                                         310

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<210> 82
<211> 571
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(571)
<223> n = A,T,C or G

<400> 82

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<210> 83
<211> 551
<212> DNA
<213> Homo sapien

<400> 83

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<210> 84
<211> 571
<212> DNA
<213> Homo sapien

<400> 84

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agtggacttt ttctctgcgc aaagcatcca g 571

<210> 85
<211> 561
<212> DNA
<213> Homo sapien

<400> 85

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<210> 86
<211> 795
<212> DNA
<213> Homo sapien

<400> 86

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cacagctcaa gtaagttagg	aaactgagcc	aagtatacac	agaatacggaa	gtggcaaaac	180
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<210> 87
<211> 594
<212> DNA
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<400> 87

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<212> DNA

<213> Homo sapien

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<211> 451

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<213> Homo sapien

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<211> 451

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<213> Homo sapien

<400> 103

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<211> 441

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<213> Homo sapien

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<210> 105

<211> 509

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

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gaagtgtctg agtgc	555
<210> 108	
<211> 541	
<212> DNA	
<213> Homo sapien	
<400> 108	
atctacgtca tcaatcaggc tggagacacc atgttcaatc gagctaagct gctcaatatt	60
ggcttcaag aggcccttggaa ggactatgat tacaactgct ttgtgtttag tgatgtggac	120
ctcattccga tggacgaccc taatgcctac aggtgtttt cgcacccacg gcacatttct	180
gttgcaatgg acaagttcgg gtttagcctg ccataatgttc agtattttgg aggtgtctct	240
gctctcagta aacaacagtt tcttgccatc aatggatcc ctaataatta ttgggggttgg	300
ggaggagaag atgacgacat ttttaacaga ttagttcata aagcatgtc tatatcacgt	360
ccaaatgctg tagtagggag gtgtcgaatg atccggcatt caagagacaa gaaaaatgag	420
cccaatcctc agaggtttaa ccggatcgca catacaaagg aaacgatgctg cttcgatgg	480
ttgaactcacttaccaa ggtgttggat gtcagagata cccgttatat acccaaata	540
c	541

<210> 109
<211> 411
<212> DNA
<213> Homo sapien

<400> 109

ctagacacct	aattaaaagg	cacaatcatg	ctggagaatg	aacagtctga	ccccgagggc	60
cacagcgaat	tttaggaaag	gaggcaaaga	ggtgagaagg	gaaaggaaag	aaggaaggaa	120
ggagaacaaat	aagaactgga	gacgttgggt	gggtcaggg	gtgtggtgg	ggctcgaga	180
gatggtaaac	aaacctgact	gctatgagtt	ttcaacccca	tagtctaggg	ccatgagggc	240
gtcagttctt	ggtggctgag	ggtccttcca	cccagccac	ctgggggagt	ggagtgggga	300
gttctgccag	gtaagcagat	gttgtctccc	aagttcctga	cccagatgtc	tggcaggata	360
acgctgacct	gttccctcaa	caagggacct	gaaagtaatt	ttgctttta	c	411

<210> 110

<211> 451
<212> DNA
<213> Homo sapien

<400> 110

ccgaattcaa	gcgtcaacga	tccytccctt	accatcaaat	caattggcca	ccaatggta	60
tgaacctacg	agtacaccga	ctacggcg	actaatcttc	aactcctaca	tacttcccc	120
attattccta	gaaccaggcg	acctgcact	ccttgacgtt	gacaatcgag	tagtactccc	180
gattgaagcc	cccatcgta	taataattac	atcacaagac	gtcttgact	catgagctgt	240
ccccacatta	ggctaaaaaa	cagatgcaat	tcccgacgt	ctaagccaaa	ccactttcac	300
cgctacacga	ccgggggtat	actacggtca	atgctctgaa	atctgtggag	caaaccacag	360
tttcatgccc	atcgctctag	aattaattcc	cctaaaaatc	tttgaaatag	ggcccgatt	420
taccctatag	cacccctct	acccctcta	g			451

<210> 111

<211> 541
<212> DNA
<213> Homo sapien

<400> 111

gcttttcaca	cttttattgt	taattctctt	cacatggcag	atacagagct	gtcgtcttga	60
agaccaccac	tgaccaggaa	atgccacttt	tacaaaatca	tcccccttt	tcatgattgg	120
aacagtttc	ctgaccgtct	gggagcgtt	aagggtgacc	agcacattt	cacatgaaa	180
aaaggagtga	ccccaaggcc	tcaaccacac	ttcccgagac	tcaccatgg	ctgcaggtga	240
cttgccaggt	ttggggttcg	tgagcttcc	ttgctgctgc	ggtggggagg	ccctcaagaa	300
ctgagaggcc	ggggtatgt	tcatgagtgt	taacatttc	gggacaaaag	cgcattatta	360
ggataaggaa	cagccacagc	acttcatgct	tgtgagggtt	agctgttagga	gcgggtgaaa	420
ggattccagt	ttatgaaaat	ttaaagcaaa	caacggtttt	tagtgggtg	ggaaacagga	480
aaactgtat	gtcggccaaat	gaccaccatt	tttctgccc	tgtgaaggtc	cccatgaaac	540
c						541

<210> 112

<211> 521
<212> DNA
<213> Homo sapien

<400> 112

caagcgcttg	gcgtttggac	ccagttcagt	gaggttcttg	ggttttgc	ctttggggat	60
tttggttga	cccaggggtc	agccttagga	aggcttcag	gaggaggccg	agttccctt	120
cagtaccacc	cotctctccc	cacttccct	ctcccgaa	catctctgg	aatcaacagc	180

atattgacac gttggagccg agcctgaaca tgcccctcg ccccagcaca tggaaaaccc	240
ccttccttgc ctaagggtgc tgagttctg gctcttgagg catttccaga cttgaaattc	300
tcatcagtcc attgctctg agtcttgca gagaacctca gatcagggtgc acctgggaga	360
aagacttgt ccccaactac agatctatct cctcccttgg gaagggcagg gaatggggac	420
ggtgtatgga ggggaaggga tctcctgcgc ccttcattgc cacacttggt gggaccatga	480
acatcttagt tgtctgagct tctcaaatta ctgcaatagg a	521
<210> 113	
<211> 568	
<212> DNA	
<213> Homo sapien	
<400> 113	
agcgtcaaat cagaatggaa aagactcaaa accatcatca acaccaagat caaaaggaca	60
agrataccttc aagaaacagg aaaaaactcc taaaacacca aaaggaccta gttctgtaga	120
agacattaaa gaaaaatgc aagcaagtat agaaaaaggt gttctcttc ccaaagtgg	180
agccaaattc atcaattatg tgaagaattt cttccggatg actgaccaag aggctattca	240
agatctctgg cagttggagga agtctcttta agaaaatagt ttaaacaatt tggtaaaaaa	300
ttttccgtct tatttcattt ctgtAACAGT tgatatctgg ctgtccttt tataatgcag	360
agtgagaact ttcccttaccc tgtttgataa atgttgtcca gttctattt ccaagaatgt	420
gttgtccaaa atgcctgttt agttttaaa gatggaaactc cacccttgc ttggttttaa	480
gtatgtatgg aatgttatga taggacatag tagtagcggt ggtcagacat ggaaatggtg	540
ggsmgacaaa aatatacatg tgaataaa	568
<210> 114	
<211> 483	
<212> DNA	
<213> Homo sapien	
<400> 114	
tccgaattcc aagcgaatta tggacaaacg attccttta gaggattact ttttcaatt	60
tcgggttttag taatcttaggc tttgcctgt aagaatacaa cgatggatt taaataactgt	120
ttgtggaatg tgtttaaagg attgattcta gaaccttgt atatttataa gtatttctaa	180
ctttcatitc tttactgtt gcagttaatg ttcatgtct gctatgcaat cgtttatatg	240
cacgtttctt taattttttt agatttcct ggatgtataa tttaaacaac aaaaagtcta	300
tttaaaactg tagcagtagt ttacagtct agcaaagagg aaagttgtgg gtttaaactt	360
tgtattttct ttcttataga ggcttctaaa aaggtattt tataatgtct ttttaacaaa	420
tattgtgtac aacctttaaa acatcaatgt ttggatcaaa acaagaccca gcttattttc	480
tgc	483
<210> 115	
<211> 521	
<212> DNA	
<213> Homo sapien	
<400> 115	
tgtgggtggcg cgggctgagg tggaggccca ggactctgac cctgcccctg cttcagcaa	60
ggccccccggc agcgccggcc actacgaact gccgtgggtt gaaaaatata ggccagtaaa	120
gctgaatgaa attgtcgaaa atgaagacac cgtgagcagg ctagaggtct ttgcaaggaa	180
aggaaatgtg cccaaacatca tcattgcggg ccctccagga accggcaaga ccacaagcat	240
tctgtgctt gcccgggccc tgctgggccc agcactcaa gatgccatgt tggactcaa	300
tgcttcaat gacaggggca ttgacgttgt gaggaataaa attaaaatgt ttgctcaaca	360
aaaagtcaact ttcccaaag gccgacataa gatcatcatt ctgatgaag cagacagcat	420
gaccgacgga gcccagcaag ctttgaggag aaccatgaa atctactcta aaaccactcg	480
ttcgcccttg ttgtatgc ttccggataag atcatcgac c	521

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<210> 116
<211> 501
<212> DNA
<213> Homo sapien

<400> 116
ctttgcaaag cttttatattc atgtctgcgg catggaatcc acctgcacat ggcacatcttag
ctgtgaagga gaaaggcagtg cacgagaagg aatgagtggg cggaaccaac ggcctccaca 60
agctgccttc cagcagccctg ccaaggccat ggcagagaga gactgcaaac aaacacaac
aaacagagtc tcttcacacgc tggagttctga aagctcatag tggcatgtgt gaatctgaca 120
aaattaaaag tggcatatgt ccattacatg cataaaaacac taataataat cctgtttaca 180
cgtgactgca gcaggcaggt ccagctccac cactgccctc ctgccacatc acatcaagtg 240
ccatggttta gagggtttt catatgtaat tctttatc tgtaaaaagg aacaaaat 300
acagaacaaa acttccctt tttaaaaacta atgttacaaa tctgtattat cacttggata 360
taaatagtat ataagctgat c 420
480
501

<210> 117
<211> 451
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(451)
<223> n = A,T,C or G

<400> 117
caaggatat atgttgaggg tacrgrgtga cactgaacag atcacaaaac acgagaaaaca
ttagttctct cctcccccag cgtctcccttc gtctccctgg ttttccgatg tccacagagt 60
gagattgtcc ctaagtaact gcatgatcag agtgcgtkct ttataagact cttcattcag
cgtatccaat tcagcaattt cttcatcaaa tgccgtttt gccaggctac aggcctttc 120
aggagagttt agaatctcat agtaaaaagac tgagaaaattt agtgcgcagac caagacgaat 180
tgggtgtgtt ggctgcattt ctttcttact aatttcaaat gcttccttgt aagcctgctg 240
ggagttcgac acaagtgggt tgggtgtgc tccagatgcc acttcagaaa gatacctaaa 300
ataatctccct ttcattttca aagtagaaca c 360
420
451

<210> 118
<211> 501
<212> DNA
<213> Homo sapien

<400> 118
tccggagccg gggtagtcgc cgccggccgc gcccgtgcag ccactgcagg caccgctgcc
ggcccttgag tagtgggctt aggaaggaag aggtcatctc gctcgagct tcgctcgaa 60
gggtctttgt tccctgcagc cctcccacgg gaatgacaat ggataaaaagt gagctggatc
agaaaggccaa actcgctgag caggctgagc gatatgatga tatggctgca gccatgaagg 120
cagtcacaga acaggggcat gaactctcca acgaagagag aaatctgctc tctgttgctc
acaagaatgt ggttaaggccg cccgccccctc tccctggcgt gtcatctcca gcattgagca 180
gaaaacagag aggaatgaga agaagcagca gatgggcaaa gagtaccgtg agaagataga 240
ggcagaactg caggacatct gcaatgatgt tctggagctt gttggacaaa tatcttattc
caatgctaca caacccagaa a 300
360
420
480
501

<210> 119
<211> 391

```

<212> DNA
<213> Homo sapien

<400> 119

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aaaaaaggcagc argttcaaca caaaatagaa atctcaaatt taggatagaa caaaaccaag      60
tgtgtgaggg gggaaagcaac agcaaaaagga agaaatgaga tgttgcaaaa aagatggagg     120
agggttcccc ttcctctgg ggactgactc aaacactgat gtggcagtat acaccattcc     180
agagtcaagg gtgttcatc ttttttggga gtaagaaaag gtggggatta agaagacgtt     240
tctggaggct tagggaccaa ggctggtctc ttcccctt cccaaacccc ttgatccctt     300
tctctgatca gggaaagga gctcaatga gggaggtaga gttggaaagg gaaaggattc     360
cacttgacag aatgggacag actccttccc a                                         391
```

<210> 120
<211> 421
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(421)
<223> n = A,T,C or G

<400> 120

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tggcaatacg acagccatcc aggagcttcc cargcgcatt tcggaggcgt tcactgccat      60
gttccgcgg aaggccttcc tccactggta cacaggcgag ggcattggacg agatggagtt     120
caccgaggct gagagcaaca tgaacgaccc cgtctctgag tatcaaggcag taccaggatg     180
ccaccgcaga agaggaggag gatttcggtg aggaggccga agaggaggcc taaggcagag     240
cccccatcac ctcaggcttc tcagttccct tagccgttctt actcaactgc ccctttccctc     300
tccctcagaa ttgtgtttt ctgcctctat cttgtttttt gtttttctt ctgggggggt     360
ctagaacagt gcctggcaca tagtaggcgc tcaataaata ctgggttgnt gaatgtctcc     420
t                                         421
```

<210> 121
<211> 206
<212> DNA
<213> Homo sapien

<400> 121

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agctggcgct agggctcggt tgtgaaatac agcgtrgtca gcccttgcgc tcagtgtaga      60
aacccacgccc tgtaaggtcg gtctcgatcc atctgtttt ttctgaaata cactaagagc     120
agccacaaaaa ctgtAACCTC aaggaaacca taaagctgg agtgcctaa ttttaacca     180
gtttccaata aaacggtttta ctacct                                         206
```

<210> 122
<211> 131
<212> DNA
<213> Homo sapien

<400> 122

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ggagatgaag atgaggaagc tgagtcagct acgggcargc gggcagctga agatgtatgag      60
gatgacgtatg tcgataccaa gaagcagaag accgacgagg atgacttagac agcaaaaaag     120
gaaaagttaa a                                         131
```

<210> 123
<211> 231

<212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(231)
 <223> n = A,T,C or G

<400> 123

gatgaaaatt aaatacttaa attaatcaaa aggcaactacg ataccaccta aaacctactg	60
cctcagtggc agtakgctaa kgaagatcaa gctacagsac atyatctaatt atgaatgtta	120
gcaattacat akcargaagc atgtttgctt tccagaagac tatggnacaa tggtcattwg	180
ggcccaagag gatatttggc cnggaaagga tcaagataga tnaangtaaa g	231

<210> 124
 <211> 521
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(521)
 <223> n = A,T,C or G

<400> 124

gagtagcaac gcaaaggcgt tggattttag tctgtggsg acttcgggtc cggctctgc	60
agcagccgtg atcgcttagt ggagtgctt gggtagtgg ccaggatgcc gaatatcaaa	120
atcttcagca ggcagctccc accaggactt atctcasaaa attgctgacc gcctggcct	180
ggagcttaggc aagggtggta ctaagaaatt cagcaaccag gagacctgtg tggaaattgg	240
tgaaagtgtt ccgtggagag gatgtctaca ttgttcagag tggtgtggc gaaatcaatg	300
acaatttat ggagcttttgc atcatgatta atgcctgcaa gattgcttca gccagccggg	360
ttactgcagt catccatgc ttcccttatg cccggcagg ataagaaaga tnagagccgg	420
gccgccaatc tcagccaagc ttggtgcaaa tatgctatct gtagcagtgc agatcatatt	480
atcaccatgg acctacatgc ttctcaaatt canggctttt t	521

<210> 125
 <211> 341
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(341)
 <223> n = A,T,C or G

<400> 125

atgcaaaagg ggacacaggg ggtcaaaaaa taaaaatttc tcttccccct ccccaaacct	60
gtaccccagc tccccgacca caacccctt cctccccgg ggaaagcaag aaggagcagg	120
tgtggcatct gcagctggta agagagaggc cggggaggtg ccgagctcggt tgctggctc	180
tttccaaata taaatacgtt tgtcagaact ggaaaatctt ccagcaccca ccacccaagc	240
actctccgtt ttctgccgtt gtggagag gggcggnngg cagggcgcc aggcaccggc	300
tggctgcgtt ctactgcattt cgctgggtgt gcaccccgcg a	341

<210> 126
 <211> 521

<212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(521)
 <223> n = A,T,C or G

<400> 126

agggtggaga aggtcatgca ggtgcagatt gtccaggskc agccacaggg tcaagccaa	60
caggcccaga gtggcactgg acagaccatg caggtgatgc agcagatcat cactaacaca	120
ggagagatcc agcagatccc ggtgcagctg aatgccggcc agctgcagta tatccgctta	180
gcccgccctg tatcaggcac tcaagttgtg cagggacaga tccagacact tgccaccaat	240
gctcaacaga ttacacagac agaggtccag caaggacagc agcagttcaa gccagttcac	300
aagatggaca gcagctctac cagatccagc aagtccacat gcctgcgggc cangacctcg	360
ccagcccatg ttcatccagt caagccaacc agcccttcna cgggcaggcc cccccagggtga	420
ccggcgcactg aaggggcctga gctggcaagg ccaangacac ccaacacaat ttttgccata	480
cagcccccaag gcaatgggca cagccttct tcccagagga c	521

<210> 127
 <211> 351
 <212> DNA
 <213> Homo sapien

<400> 127

ttaggatttat tgcatatcat gcagcttcaa gtccatgcaa aggrractag cacagtttt	60
aatgcattta aaaaataaaaa gggaggtggg cagcaaacac acaaagtcc agttccctgg	120
gtccctggga gaaaagagtg tggcaatgaa tccacccact ctccacaggg aataaaatctg	180
tctcttaaat gcaaagaatg tttccatggc ctctggatgc aaatacacag agctctgggg	240
tcagagacaag ggatggggag aggaccacga gtaaaaaagc agctacacac attcacctaa	300
ttccatctga gggcaagaac aacgtggcaa gtcttgggg tagcagctgt t	351

<210> 128
 <211> 521
 <212> DNA
 <213> Homo sapien

<400> 128

tccagacatg ctccgtcct aggccccggag caggaaccag acctgctatg ggaaggcagaa	60
agagttaagg gaagggttcc tttcatttcct gttcccttc ttttgccttt gaacagtttt	120
taaatataact aatacgtaag tcatttgcca gccaggccc ggtgaacagt agagaacaag	180
gagcttgcta agaattaatt ttgctgttt tcacccatt caaacagagc tgccctgttc	240
cctgtatggag ttccatttcct gccaggccac ggctgagtaa cacgaagcca ttcaagaaag	300
gcgggtgtga aatcactgccc accccatggc cagaccctc actccctt ctttagccca	360
gcgctactta ataaatatat ttatactttg aaattatgt aaccgatttt tcccatgcgg	420
catcctaagg gcacttgccc gctcttatcc ggacagtcaa gcactgttgt tggacaacag	480
ataaaggaaa agaaaaagaa gaaaacaacc gcaacttctg t	521

<210> 129
 <211> 521
 <212> DNA
 <213> Homo sapien

<400> 129

tgagacggac cactggcctg gtccccctc atktgctgtc gttaggacctg acatgaaacg	60
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cagatctagt ggcagagagg aagatgatga ggaacttctg agacgtcggc agcttcaaga	120
agagcaatta atgaagctta actcaggcct gggacagttg atcttcaaag aagagatgga	180
gaaaagagac cgggaaaggcatctctgtt agccagtcgc tacgattctc ccatcaactc	240
agttcacat attccatcat ctaaaactgc atctctcct ggctatggaa gaaatggct	300
tcaccggcct gtttctaccg acttcgctca gtataacagc tatggggatg tcagcgaaaa	360
agtgcgagat taccagacac ttccagatgg ccacatgcct gcaatgagaa tggaccgagg	420
agtgtctatg cccaacatgt tggaacaaa gatatttcca tatgaaatgc tcatgggac	480
caacagaggg cggaaaccaa atctcagaga ggtggacaga a	521
<210> 130	
<211> 270	
<212> DNA	
<213> Homo sapien	
<400> 130	
tcactttatt tttcttgat aaaaacccta tggtagcc acagctggag cctgagtcg	60
ctgcacggag actctgggtt gggcttgac gaggtggta gtgaactcct gataggaga	120
cttggtaat acagtctcct tccagaggc ggggtcagg tagctgttagg tcttagaaat	180
ggcatcaaag gtggccttgg cgaagttgcc cagggtggca gtgcagcccc gggctgaggt	240
gtagcagtca tcgataccag ccatcatgag	270
<210> 131	
<211> 341	
<212> DNA	
<213> Homo sapien	
<400> 131	
ctggaatata gaccgtgat cgacaaaact ttgaacgagg ctgactgtgc caccgtcccg	60
ccagccattc gctcctactg atgagacaag atgtggat gacagaatca gctttgtaa	120
ttatgtataa tagctcatgc atgtgtccat gtcataactg tcttcataacg cttctgcact	180
ctggggaaaga aggagtacat tgaagggaga ttggcaccta gtggctggaa gcttgcagg	240
aacccagtgg ccagggagcg tggcacttac ctttgcctt tgcttcattc ttgtgagatg	300
ataaaactgg gcacagctct taaaataaaat ataaatgaac a	341
<210> 132	
<211> 844	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(844)	
<223> n = A,T,C or G	
<400> 132	
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gaaccttcca gaagtggca tctgtgggtt tgcctctgg gaaggagcag aagtacacat	120
gccatgtgga acatgagggg ctgcctgagc ccctcacccct gagatggggc aaggaggagc	180
ctccttcattc caccaagact aacacagtaa tcattgtgt tccgggtgtc cttggagctg	240
tggtcattcct tggagctgtt atggcttttgg tggatgaaag gagggaaaac acaggtggaa	300
aaggaggaa ctatgtctg gctccaggct cccagagctc tgatatgtct ctcccagatt	360
gtaaagtgtt aagacagctg cctgggtgg acttgggtac agacaatgtc ttcacacatc	420
tcctgtgaca tccagagacc tcagttctt ttagtcaagt gtctgatgtt ccctgtgaggt	480
ctgcgggctc aaagtgaaga actgtggagc ccagtccacc cctgcacacc aggaccctat	540
ccctgcactg ccctgtgttcc cttccacag ccaacattgc tgctccagcc aaacattgg	600

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ggacatctgc agcctgtca gtcctatgcta ccctgaccctt caactcctca cttccacact 660
gagaataata atttgaatgt gggtggtctgg agagatggct cagcgctgac tgctcttcca 720
aaggctctga gtcaaattcc cagcaaccac atgggtggctc acaaccatct gtaatggat 780
ctaataccct ctctgtcagt gtctgaagac asctacagtg tacttacata taataataaa 840
taag

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<210> 133
<211> 601
<212> DNA
<213> *Homo sapien*

<400> 133

ggccggggcgc ggcgcgcccc gccacacgca cgccggggcgt gccagttat aaaggagag 60
agcaaggcgc gagtcctgaa gctctgttg gtgcggta tccatttcca tcggtcctta 120
cagccgctcg tcagactcca gcagccaaga tggtaagca gatcgagagc aagactgctt 180
ttcaggaagc ctggacgct gcaggtgata aacttgttagt agttgacttc tcagccacgt 240
ggtgtggcc ttgcaaaaatg atcaagcctt tcttcattc cctctctgaa aagtatttcca 300
acgtgatatt cttgaagta gatgtggatg actgtcagga tgttgctca gagtgtgaag 360
tcaaattgcattt gccaacattt cagttttta agaagggaca aaaggtgggt gaattttctg 420
gagccaataa ggaaaagctt gaagccacca ttaatgaatt agtctaattca tgttttctga 480
aatataacc accattggc tattttaaac ttgttaatttt tttaatttac aaaaatataa 540
aatatgaaga cataaaacccm gttgccccatct gcgtgacaat aaaacattaa tgctaacact 600
t

<210> 134
<211> 421
<212> DNA
<213> *Homo sapien*

<400> 134

tcacataaaga	aatttaagca	agttacrccta	tcttaaaaaaa	cacaacgaat	gcattttaat	60
agagaaaacc	ttccctccct	ccacccccc	cccccaccc	cctcatgaat	taagaatcta	120
agagaagaag	taaccataaa	accaagtttt	gtggaatcca	tcatccagag	tgcttacatg	180
gtgatttaggt	taatattgcc	ttcttacaaa	atttctattt	aaaaaaaaat	tataaccttg	240
attgcttatt	acaaaaaaaaat	tcagtacaaa	agttcaatat	attgaaaaat	gctttccccc	300
tccctcacag	caccgtttta	tatatacgag	agaataatga	agagattgct	agtctagatg	360
gggcaatctt	caaattacac	caagacgcac	agtggtttat	ttaccctcc	cttctcataaa	420
g						421

<210> 135
<211> 511
<212> DNA
<213> *Homo sapien*

<400> 135

ggaaaggatt	caagaattag	aggacttgct	tgctrtragaa	aaagacaact	ctcgctcgcat	60
gctgacagac	aaagagagag	agatggcgga	aataaggat	caaatgcagc	aacagctgaa	120
tgactatgaa	cagcttcttg	atgtaaagtt	agccctggac	atggaaatca	gtgcttacag	180
gaaactctta	gaaggcgaag	aagagagggt	gaagctgtct	ccaagccctt	cttcccgtgt	240
gacagtatcc	cgagcatcct	caagtcgtag	tgtaccgtac	aactagagga	aagcggaaaga	300
gggttcatgt	ggaagaatca	gaggcgaagt	agttagtgtt	gcatctctca	ttccgcctca	360
accactggaa	atgtttgcat	cgaagaaaatt	gatgttgatg	ggaattttat	cccgcttgaa	420
gaacacttct	gaacaggatc	aaccaatggg	aaggcttggg	agatgatcag	aaaaatttgg	480
gacacatcag	tcagttataa	atatacctca	a			511

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<210> 136
<211> 341
<212> DNA
<213> Homo sapien

<400> 136
catgggttc accaggttgc ccaggctgct ttgaactsc tgacctcagg tgatccaccc      60
gcctcgccct cccaaagtgc tgggattaca ggcgtgagcc accacgcccgc gcccccaaaag    120
ctgtttcttt tgtcttttagc gtaaagctct cctgccatgc agtatctaca taactgacgt    180
gactgccagc aagctcagtc actccgtggc cttttctct ttccagttct tctctctc       240
ttcaagttct gcctcagtga aagctgcagg tccccagttt agtgatcagg tgagggttct    300
ttgaacctgg ttctatcagt cgaattaatc cttcatgatg g                                341

<210> 137
<211> 551
<212> DNA
<213> Homo sapien

<400> 137
gatgtgttgg accctctgtc taaaaaaaaa cctcacaaag aatccctgc tcattacaga      60
agaagatgca tttaaaatgggttatttt caactttta tctgaggaca agtatccatt    120
aattatgtg tcagaagaga ttgaatacct gcttaagaag cttacagaag ctatggagg    180
agttggcag caagaacaat ttgaacatta taaaatcaac tttgatgaca gtaaaaatgg   240
cctttctgca tgggaactta ttgagctt tggaaatggc cagtttagca aggcatgga   300
ccggcagact gtgtctatgg caattaatga agtcttaat gaacttataat tagatgtgtt 360
aaagcagggt tacatgatga aaaaggccca cagacggaaa aactggactg aaagatggtt 420
tgtactaaaa cccaacataa ttcttacta tgtgagttag gatctgaagg ataagaaagg 480
agacattctc ttggatgaaa attgctgtgt agaagtcctt gcctgacaaa agatggaaag 540
aaatgccttt t                                551

<210> 138
<211> 531
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(531)
<223> n = A,T,C or G

<400> 138
gactgggtct ttatttcaaa aagacacttg tcaatattca gtrtcaaaac agttgcacta      60
ttgatttctc ttctcccaa tcggcccaa agagaccaca taaaaggaga gtacattta    120
agccaaataag ctgcaggatg tacaccta ac agacccctta gaaaccttac cagaaaatgg 180
ggactggta gggaggaaa cttaaaagat caacaaactg ccagccacg gactgcagag 240
gctgtcacag ccagatgggg tggccagggt gccacaaacc caaagcaag tttcaaaata 300
atataaaaatt taaaagttt tgtacataag ctattcaaga tttctccagc actgactgat 360
acaaagcaca attgagatgg cacttctaga gacagcagct tcaaaacccag aaaagggtga 420
tgagatgaag ttccacatgg ctaaatcagt ggcaaaaaca cagtcttctt tctttcttc 480
tttcaaggan gcaggaaagc aattaagtgg tcaccttaac ataagggga c                                531

<210> 139
<211> 521
<212> DNA
<213> Homo sapien

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<220>
 <221> misc_feature
 <222> (1)...(521)
 <223> n = A,T,C or G

<400> 139

tgggtggca ccatggctgg gatcaccacc atcgaggcg tgaagcgcaa gatccaggtt	60
ctgcagcagc aggcagatga tgcagaggag cgagctgagc gcctccagcg agaagtttag	120
ggagaaaggc gggcccggga acaggctgag gctgaggtgg cctccttgaa ccgttagatc	180
cagctggttg aagaagagct ggaccgtgct caggagcgcc tggccactgc cctgcaaaag	240
ctggaagaag ctgaaaagc tgctgtatgag agtgagagag gtatgaaggt tattgaaaac	300
cgggccttaa aagatgaaga aaagatggaa ctccaggaaa tccaaactcaa agaagctaag	360
cacattgcag aagaggcaga taggaagtat gaagaggtgg ctgcgtaaat ggtgatcatt	420
gaaggagact tggaaaccgca cagaaggaac gagcttgagc ttggcaaaag tcccggtgcc	480
cagagatggg atgaaccaga ttagactgtat ggaccanaac c	521

<210> 140

<211> 571
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(571)
 <223> n = A,T,C or G

<400> 140

aggggcngcg ggtgcgtggg ccactgggtg accgacttag cctggccaga ctctcagcac	60
ctggaagcgc cccgagagtg acagcgtgag gctggaggg aggacttggc ttgagcttgt	120
taaactctgc tctgagcctc cttgtcgct gcatttagat ggctcccgca aagaagggtg	180
gcgagaagaa aaagggccgt tctgccatca acgaagtgtt aaccgagaa tacaccatca	240
acattcacaa gcgcatccat ggagtggct tcaagaagcg tgcacccctgg gcactcaaag	300
agattcggaa atttgccatg aaggagatgg gaactccaga tgtgcgcatt gacaccaggc	360
tcaacaaagc tgtctggcc aaaggaataa ggaatgtgcc ataccgaatc cggtgtgcgg	420
ctgtccagaa aacgtaatga ggatgaagat tcaccaaata agtatatac tttggttacc	480
tatgtacctg ttaccactt caaaaatcta cagacagtca atgtggatga gaactaatcg	540
ctgatcgtca gatcaaataa agttataaaa t	571

<210> 141

<211> 531
 <212> DNA
 <213> Homo sapien

<400> 141

tcgggagcca cacttggccc tcttcctctc caaagsgcca gaacctcctt ctctttggag	60
aatggggagg cctcttggag acacagaggg tttcaccttg gatgacctct agagaaattg	120
cccaagaagc ccaccttctg gtcccaaccc gcagacccca cagcagtcag ttggtcaggc	180
cctgctgttag aaggtcaact ggctccattg cctgtttcca accaatgggc aggagagaag	240
gcctttatcc ctcgcccacc cattcctctt gtaccagcac ctccgttttc agtcagtgtt	300
gtccagcaac ggtaccgtt acacagtca ctcagacaca ccatttcacc tcccttgcca	360
agctgttagc ctttagagtga ttgcagtgaa cactgtttac acaccgtgaa tccattccca	420
tcagtccatt ccagttggca ccagcctgaa ccatttgta cctgggttta actggagtc	480
tgtttacaag gtggagtcgg ggcttgctga cttctcttca tttgagggca c	531

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<210> 142
<211> 491
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(491)
<223> n = A,T,C or G

<400> 142
acctagacag aagggtgggtg agggaggact ggttaggaggc tgaggcaatt ccttggtagt      60
ttgtcctgaa accctactgg agaagtcagc atgaggcacc tactgagaga agtgcggcaga      120
aactgctgac tgcatactgtt aagagttAAC agtaaAGAGG tagaagtgtg tttctgaatC      180
agagtggaaAG CGTCTCAAGG gtcccacagt ggagggtccct gagtacacctc ccttccgtGA      240
gtgggaaAGAG TGAAGGCCAT gaagaACTGA gatgaAGCAA ggatggggTT cctgggCTCC      300
aggcaAGGGC TGTGCTCTC gcagcAGGGa gccccACAGAG tcagaAGAAA agaACTAATC      360
atTTGTTGCA agaaACCTTG CCCGGATACT agcggAAAC tggaggCGGN ggtgggggCA      420
cagggAAAGTG gaagtGATTt gatggagAGC agagaAGCCT atgcacAGTg gccgagtCCA      480
cttGTAAGT g      491

<210> 143
<211> 515
<212> DNA
<213> Homo sapien

<400> 143
ttcaagcaat tgaacaAGT atatgtAGAT tagAGTgAGC AAAATCATAT acaattttca      60
tttccagtttG CTATTTCCA aattgttCTG taatgtcGTT AAAATTACTT AAAAATTAAC      120
aaAGCCAAA ATTATATTa TGACAAGAAA GCCATCCCTA catTAATCTT acttttccac      180
tcaccgGCC ATCTCCTTC C TCTTTCCt aactatgCCA ttAAAActGT tctactggc      240
cgggcgtGTG GCTCATGCCT gtaatcccAG cattttggGA ggccaaggca ggcggatcat      300
gaggTcaaga gattgagACC atcctggCCA acatggtgAA accccgcctc gactaagaAT      360
acaaaaatta gctgggcatG gtggcgcATG CCTGTAGTCT cagctactcg ggaggctgAG      420
gcagaagaAT cgcttGAACC CGGGAGGGCAG aggatgcAGT gagccccGAT cgccGCCACTG      480
cactctAGCC tgggcgacAG actgagactc tgctc      515

<210> 144
<211> 340
<212> DNA
<213> Homo sapien

<400> 144
tgtGCCAGTC tacaggccta tcagcagcga ctcccttcAGC aacagatggg gtccccCTGTT      60
cagcccaacc ccatgagccc ccagcagcat atgctcccaatcaggccca gtccccCACAC      120
ctacaaggcc agcagatccc taattctctc tccaatcaag tgcgtctcc ccagcctGTC      180
ccttctccac ggccacAGTC ccagcccccc cactccAGTC cttcccccaAG gatgcAGCCT      240
cagccttctc cacaccacGT ttccccacAG acaagttccc cacatcctgg actggtaGTT      300
gccccaggcca accccatgGA acaagggcat ttgccAGCC      340

<210> 145
<211> 630
<212> DNA
<213> Homo sapien

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<400> 145

tgtaaaaact	tgttttaat	tttgtataaa	ataaaaggtagg	tccatgccca	cggggctgt	60
aggaaatcca	agcagaccag	ctgggggtgg	gggatgtac	ctacctcggt	ggactgtctg	120
tcctcaaaaac	gggctgagaa	ggcccgtag	ggggccaggt	cccacagaga	ggcctggat	180
actcccccaa	cccgaggggc	agactggca	gtggggagcc	cccatcgtgc	cccagaggtg	240
gccacaggct	gaaggagggg	cctgaggcac	cgcagcctgc	aaccccccagg	gctgcagtcc	300
actaactttt	tacagaataa	aaggAACATG	gggatgggaa	aaaaAGCACC	aggtcaggca	360
ggggcccgagg	gccccagatc	ccaggagggc	caggactcag	gatGCCAGCA	ccacccttagc	420
agctcccaaca	gctcctggca	caggaggccg	ccacggattt	gcacaggccg	ctgctggcca	480
tcacgcaca	tttggagaac	ttgtcccgac	agaggtcagc	tcggaggagc	tcctcgtggg	540
cacacactgt	acgaacacag	atctccttgt	taatgacgta	cacacggcgg	aggctgcggg	600
gacaggcac	gggaggtctc	agccccactt				630

<210> 146

<211> 521

<212> DNA

<213> Homo sapien

<400> 146

atggctgctg	gatTTAGGTG	gtaatAGGGG	ctgtggccca	taaatctgaa	gccttgagaa	60
ccttgggtct	ggagagccat	gaagaggaa	ggaaaagagg	gcaagtctg	aacctaacca	120
atgacctgat	ggattgctcg	accaagacac	agaagtgaag	tctgtgtctg	tgcacttccc	180
acagactgga	gtttttgggt	ctgaatagag	ccagttgcta	aaaaattggg	gttttggtga	240
agaaatctga	ttgttgtgtg	tattcaatgt	gtgattttaa	aaataaacag	caacaacaat	300
aaaaaccctg	actggctgtt	ttttccctgt	attcttaca	actatTTTT	gaccctctga	360
aaattattat	acttcaccta	aatgaaagac	tgctgtgtt	gtggaaattt	tgtatTTTT	420
taatTTTT	tattctctct	ccttttattt	ttgcctgcag	aatccgttga	gagactaata	480
aggcttaata	ttaatttatt	ttgtttaata	tgtatataaa	t		521

<210> 147

<211> 562

<212> DNA

<213> Homo sapien

<400> 147

ggcatgcgag	cgcactcggt	ggacgcaagg	gcggcgggg	gcacacggag	cactgcaggc	60
gccgggttgg	gacagcgtot	tcgctqctgc	tggatagtcg	tgttttggg	gatcgaggat	120
actcaccaga	aaccgaaaat	gccgaaacca	atcaatgtcc	gagttaccac	catggatgca	180
gagctggagt	ttgcaatcca	gccaataaca	actggaaaac	agcttttga	tcaggtggta	240
aagactatcg	gcctccggg	agtgtggta	tttggcctcc	actatgtgga	taataaagga	300
tttcctacct	ggctgaagct	ggataagaag	gtgtctgccc	aggaggtcag	gaaggagaat	360
cccctccagt	tcaagttccg	ggccaaagtt	ctaccctgaa	gatgtggctg	aggagctcat	420
ccaggacatc	acccagaaac	ttttcttcct	tcaagtgaag	gaaggaatcc	ttagcgatga	480
gatctactgc	cccccttgar	actgcccgtc	tcttggggtc	ctacgcttgt	gcatgccaag	540
tttggggact	accaccaaga	ag				562

<210> 148

<211> 820

<212> DNA

<213> Homo sapien

<400> 148

gaaggagtcg	ggataactca	cattgatgca	ccccaaatttc	aaagcggcat	tcttcggcag	60
gtctctggga	caatctctag	ggtcactacc	tggaaactcg	ttagggtaca	actgaatgt	120
gaaagggaaag	aacacactgca	gaaccggaca	gaaattcacc	ccggcgatca	gctgattgt	180

ctcggtcgac cagaagtcat ggctaaagat gacgaggacg ttgtcaattc cctgggctt	240
tcgaagttag tccagcagca gtctgaggtt ttcgggccc ttatgcacct ggaccaccag	300
caccagctcc cggggggccc aggtgccagc cttatctaca ttctcaggg tctgatcaa	360
gttcagctgg tacaccagg accgttaccg cagcgtcagg ttgtccgctc gggctgggg	420
accgccccga ccagggaaagc cgccgacacg ttggagaccc tgccgatgcc cacagccaca	480
gaggggttgt ccccacccgcg gcccggca ccccgccggt gttccggcgtc cagcaacgg	540
ggggcgaggg cctcggttctt ccttgcgc ccattgtgc tccagaggac gaagccgcag	600
gccccccacca cgagcgtcag gattagcacc ttccgtttgt agatgcggaa cctcatggtc	660
tccaggccgc ggagcgcagc tacagctcga gcgtcggcgc cccgctagg agccgcggct	720
cggcttcgtc tccgtcctct ccattcagca ccacgggtcc cggaaaaaagc tcagccscgg	780
tcccaaccgc accctagctt cgttacctgc gcctcgcttg	820
<210> 149	
<211> 501	
<212> DNA	
<213> Homo sapien	
<400> 149	
cagattttta ttgcgttcg tcactgggc cgtttcttgc tgcttatttg tctgttagcc	60
tgctcttcca gctgcgtggc caggcgcaag gcctgtatga catctcgac ggctgagaaa	120
tgcttggctt gctggccag agcagattcc gcttgcgttca caaaggcttc caggtcatag	180
tctggctgtc cggtcatctc agagagctca agccagttcg gtccttgcgt tatgatctcc	240
ttgagcttcc ccatagcctt ctccctccgc tccctgtatct gagtcatggc ttgcgtttaaag	300
ctggacatctt gggaaagacag ttccctcctct tccctggata aattgcctgg aatcagcgcc	360
ccgttagagc aggcttccat ctcttctgtt tccatttggaa tcaactgctc tccactggc	420
ccactgtggg ggctcagctc ctgcaccctg ctgcataatct taagggtgtt taaaggatata	480
tcacaggagc ttatgcctgg t	501
<210> 150	
<211> 511	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(511)	
<223> n = A,T,C or G	
<400> 150	
ctcctcttgg tacatgaacc caagttgaaa gtggacttaa caaagtatct ggagaaccaa	60
gcattctgtt ttgactttgc atttgcgtt acagcttgcg atgaagttgt ctacagggttc	120
acagcaaggc cactggtaca gacaatctt gaaggtggaa aagcaacttg ttttgcata	180
ggccagacag gaagttggca gacacatact atggcgagg acctctctgg gaaagcccg	240
aatgcgttcca aaggatcta tgccatggcc ttccgggacg tcttcttctg aagaatcaac	300
cctgttaccg gaagttgggc ctggaaatgttgcgtt atgtgcattt ctgcagatc tacaatggg	360
agctgtttga cctgttcaac aagaaggcca agcttgcgcg tgcttggaa cggcaagcaa	420
caggttgcac agttggggcc ttgcaggaaatctggntaa ctctgttgcgtt tgcgttgcgtt	480
caagatgttgc gacatgggca gcgccttgc a	511
<210> 151	
<211> 566	
<212> DNA	
<213> Homo sapien	
<400> 151	

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caaatacttt gcgccaaagat ctgatgagac gacaggaaga attaagacgc atggaagaac	120
ttcacaatca agaaatgcag aaacgtaaag aaatgcaatt gaggcaagag gaggAACGAC	180
gtagaagaga ggaagagatg atgattcgac aacgtgagat ggaagaacaa atgaggcgcc	240
aaagagagga aagttacagc cgaatggct acatggatcc acggaaaga gacatgcgaa	300
tgggtggcgg aggagcaatg aacatggag atccctatgg ttcaggaggc cagaaatttc	360
cacctctagg aggtggtggt ggcatacgat atgaagctaa tcctggcggt ccaccagcaa	420
ccatgagtgg ttccatgatg ggaagtgaca tgcgtactga gcgcTTTGGG cagggaggtg	480
cggggcctgt ggggtggacag ggtccctagag gaatggggcc tggaaactcca gcaggatatg	540
gtagagggag agaagagtac gaaggc	566

<210> 152

<211> 518

<212> DNA

<213> Homo sapien

<400> 152

ttcgtgaaga ccctgactgg taagaccatc actctcgaag tggagcccga gtgacaccat	60
tgagaatgtc aaggcaaaga tccaaagacaa ggaaggcatac cctcctgacc agcakagggtt	120
gatctttgtc gggaaacagc tggaagatgg acgcaccctg tctgactaca acatccagaa	180
agagtccacc ctgcacctgg tgctccgtct cagaggtggg atgcaaattct tcgtgaagac	240
cctgactggt aagaccatca ccctcgaggt ggagccccagt gacaccatcg agaatgtcaa	300
ggcaaagatc caagataagg aaggcatccc tcctgatcag cagaggttga tctttgctgg	360
gaaacagctg gaagatggac gcaccctgtc tgactacaac atccagaaag agtccactct	420
gcacttggtc ctgcgttgc ggggggtgt ctaagttcc ctttttaagg tttcaacaaa	480
tttcatgtca ctttcatttc aataaagttt ttgcattc	518

<210> 153

<211> 542

<212> DNA

<213> Homo sapien

<400> 153

gcgcgggtgc gtggggccact gggtgaccga cttagcctgg ccagactctc agcacctgga	60
agcgc(cc)ga gagtgacagc gtgaggctgg gaggaggac ttggctttag cttgttaaac	120
tctgctctga gcctccttgt cgccgtcatt tagatggctc ccgcaaaagaa gggTggcgag	180
aagaaaaagg gccgttctgc catcaacgaa gtggtaaccc gagaatacac catcaacatt	240
cacaagcgc tccatggagt gggcttcaag aagcgtgcac ctgggcaact caaagagatt	300
cggaaatttg ccatgaagga gatgggaaact ccagatgtgc gcattgacac caggctcaac	360
aaagctgtct gggccaaagg aataaggaat gtgccatacc gaatccgtgt gcggctgtcc	420
agaaaacgta atgaggatga agattcacca aataagctat atactttgtt tacctatgtta	480
cctgttacca ctttcaaaaaa tctacagaca gtcaatgtgg atgagaacta atcgctgatc	540
gt	542

<210> 154

<211> 411

<212> DNA

<213> Homo sapien

<400> 154

aattctttat ttaaatcaac aaactcatct tcctcaagcc ccagaccatg gtggcagcc	60
ctccctctcc atcccctcac cccacccctt agccacagtg aaggaaatgg aaaatgagaa	120
gccacgaggg cccctgcccag ggaaggctgc cccagatgtg tggtagccac agtcagtgc	180
gctgtggctg gggcagcagc tgccacagcc tcctccctat aaattaagtt cctgcagcca	240
cagctgtggg agaagcatac ttgtagaagc aaggccagtc cagcatcaga aggcagaggc	300

agcatcagtg actccccagcc atggaatgaa cggaggacac agagctcaga gacagaacag gccaggggga agaaggagag acagaatagg ccagggcatg gcggtgaggg a	360 411
<210> 155	
<211> 421	
<212> DNA	
<213> Homo sapien	
 <220>	
<221> misc_feature	
<222> (1)...(421)	
<223> n = A,T,C or G	
 <400> 155	
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<210> 156	
<211> 670	
<212> DNA	
<213> Homo sapien	
 <400> 156	
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<210> 157	
<211> 421	
<212> DNA	
<213> Homo sapien	
 <400> 157	
gtttcacagc actgctgctt gtgtttgcc ggccaggaat tccaggctca caaggctatc ttagcagctc gttctccgggt ttttagtgcc atgtttgaac atgaaatggaa ggagagcaaa aagaatcgag ttgaaatcaa tgatgtggag cctgaagttt ttaaggaaat gatgtgottc atttacacgg ggaaggctcc aaacctcgac aaaatggctg atgatttgc ggcagctgt gacaagatg ccctggagcg cttaaaggc atgtgtgagg atgcctctg cagtaacctg tccgtggaga acgctgcaga aattctcatc ctggccgacc tccacagtgc agatcagt aaaactcagg cagtggattt catcaactat catgcttcgg atgtttggaa gacctcttgg	60 120 180 240 300 360 420

g 421

<210> 158
<211> 321
<212> DNA
<213> Homo sapien

<400> 158
tcgttagccat ttttctgctt ctttggagaa tgacgccaca ctgactgctc attgtcggttg 60
gttccatgcc aattgggtgaa atagaacctc atccggtagt ggagccggag ggacatcttg 120
tcatcaacgg ttagtgggtcg atttggagca taccagagct tgggtgttctc gccatacagg 180
gcaaagaggt tggacaaag aggagagata cggcatgcct gtgcagccct gatgcacagt 240
tcctctgctg tggactctcc actgcccagc cggaggggtc ccctgtccga cagatagaag 300
atcaattcca cccctggctt g 321

<210> 159
<211> 596
<212> DNA
<213> Homo sapien

<400> 159
tggcacactg ctcttaagaa actatgawga tctgagattt ttttgtgtat gtttttgact 60
cttttgagtg gtaatcatat gtgtctttat agatgtacat acctccttgc acaaatggag 120
ggaaattcat tttcatcaact gggagtgtcc tttagtgtata aaaaccatgc tggtatatgg 180
cttcaagttt gaaaaatgaa agtgacttta aaagaaaaata gggatggtc caggatctcc 240
actgataaga ctgtttttaa gtaacttaag gacctttggg tctacaagta tatgtgaaaa 300
aaatgagact tactgggtga ggaaattcat tggtaaaaga tggcgtgtg tgggtgtgtg 360
tgggtgtgtg ttgtgtgtg ttttgtttt taaggggaggg aatttattat ttaccgttgc 420
ttgaaattac tgkgtaaata tatgtytgtat aatgatttgc tytttgvcmca ctaaaaattag 480
gvctgtataa gtwctaratz cmccctggg kggtgatytt ccmagatatt gatgatamcc 540
cttaaaaattt gtaaccygcct tttcccttt gctytcattt aaagtctatt cmaaag 596

<210> 160
<211> 515
<212> DNA
<213> Homo sapien

<400> 160
gggggttaggc tcttttattt acggttattt ctgtactaca gggtcagagt gcagtgtaaag 60
cagtgtcaga ggcccgcggtt cagcccaaga atgtggattt tctctcccta ttgatcacag 120
tgggtgggtt ttttcagaaa agccccagag gcagggacca gtgagctcca aggttagaaag 180
tggaaactgga aggcttcagt cacatgctgc ttccacgcctt ccaggctggg cagcaaggag 240
gagatgccc tggactgcca ggtctccccca tctgacacca gtgaagtctg gtggacacgc 300
agccgcacgc ctgcctctgc caggaggcca atcatggtag gcagcattgc agggtcagag 360
gtctgagtcc ggaataggag caggggcagg tccctgcggg gaggcacttc tggcctgaag 420
acagctccat tgagccctg cagtagacaggy gttagtgcctt ggaccaagcc cacagcctgg 480
taagggcgc ctgcccaggc cacggccagg aggca 515

<210> 161
<211> 936
<212> DNA
<213> Homo sapien

<400> 161
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aaggaaccag ggttgtctta tggcatccag ttaagccaga gctggaaatg cctctgggtc 120
 atccacatca ggagcagaag cactgactt gtcggctctg ctgccacggt ttggcgccc 180
 accacgcccc cgtccaccc tcgcctccct gccgccacgt cctggcgcc caaggcttcc 240
 aaaattgatc tccagcttag acgttatatac atttgcgtgc ttccggaaat gatggccat 300
 aaccgaatct tcagcattag cctcttcaact ctttgattta tgaagaacaa atcccttctt 360
 ccactgcccc tcagcacctt cattgggtt tcggatatta aattctactt ttgcccggtc 420
 cttatttga atagccttcc actcatccaa agtcatctt tttggaccct cctctttac 480
 ctcttcaact tcattctcttatttgcgt gtctgcccact ggatgatgtt ctgcacccctt 540
 aggtgtttcc tcagtcacat ttgattgtac caagtcaagg aattcgttca tgacaggccc 600
 ccagttgtga gatccgctac ctccacgtt gtcctcggtc ttcaggccag atctatcaact 660
 tccactatgc ctatcaaatt cacgttgcc acgagaatca aatccatctc ctggcccat 720
 tccacgtcca cggccccctc gaccttccaa aagaccacca cgacctcgaa taggtcggtc 780
 aataatcggt ctatcaactg aaaattcgcc tccttcaccc tttcttcaa gtggctttc 840
 gaatttcggt tcacgaggtt gtcgccttcc ttgttcttca tcaatttattt tcccttcacc 900
 ctgaagttgt tgatcaggc ttcttccaa tcgtgc 936

<210> 162

<211> 950

<212> DNA

<213> Homo sapien

<400> 162

aagcggatgg acctgagtca gccgaatcctt agcccttcc ctggggcctg ctgtgggtc 60
 cgacatcagt gacagacgga agcagcagac catcaaggct acgggaggcc cggggcgctt 120
 gcgaagatga agtttggctg cctctccttc cggcagcctt atgctggctt tgtcttaat 180
 ggaatcaaga ctgtggagac ggcgtggcgt cctctgtca gcaagccagcg gaactgtacc 240
 atcgccgtcc acattgctca cagggactgg gaaggcgtat cctgtcggtt gctgtgggt 300
 gagagactcg ggatgactcc tgctcagatt caggccttgc tcaggaaagg ggaaaagttt 360
 ggtcgaggag tgatagcggg actcggttgc attggggaaa ctttgcataat ccccaagac 420
 ttaactcccg atgagggtgt ggaactagaa aatcaagctg cactgaccaa cctgaagcag 480
 aagtaccta ctgtgatttc aaaccccagg tggttactgg agccataacc taggaaagga 540
 ggcaaggatg tattccagg agacatccca gagcacctga tcccttggg gcatgaagt 600
 tgacaagtgt gggctcttca aaggaatgtt ccrgagaaac cagctaaatc atggcacctt 660
 caatttgcctt tcgtgacgca gacctgtata aattaggtt aagatgaatt tccactgctt 720
 tggagagtcc caccactaa gcactgtgca tgtaaacagg ttccttgc tcatgttca 780
 aagttaggggg tggggctttc cttgtgtat gcctccttag gcacacaggg aatgtctcaa 840
 gtactttgac cttagggtag aaggcaaaac tgccagtaaa tgtctcagca ttgtctgtt 900
 ttttggctt gtagtttca gattgtaca aataaatgtt ttgttagatgt 950

<210> 163

<211> 475

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(475)

<223> n = A,T,C or G

<400> 163

tcgagcggcc gcccggggcag gtgtcggtt ccagcacggg aggctgggtc ttgttagttgt 60
 tctccggctg cccattgctc tcccaacttca cggcgtatgtc gctggatag aagccttgc 120
 ccaggcaggt caggctgacc tggttcttgg tcatcttcc cgggatggg ggcagggtgt 180
 acacctgtgg ttctcgggggc tgcccttgg ctttggagat ggtttctcg atggggctg 240
 ggaggcgtt gttggagacc ttgcacttgt actccttgc attcaaccag tccctgggtca 300

ngacggtagag gacgctnacc acacggtagc ngctgggtga ctgctcctcc cgccggcttg	360
tcttggcatt atgcacacctcc acgcgcgtcca cgtaccaatt gaacttgacc tcagggtctt	420
cgtggctcac gtccaccacc acgcatgtaa cctcaaanc cggncgcgan cacgc	475
<210> 164	
<211> 476	
<212> DNA	
<213> Homo sapien	
<400> 164	
agcgtggtcg cggccgaggt ctgaggttac atgcgtggtg gtggacgtga gccacgaaga	60
ccctgaggc aagttaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa	120
gccgcgggag gaggcgtaca acagcacgta ccgtgtggc agcgtcctca ccgtcctgca	180
ccaggactgg ctgaatggca aggagtacaa gtgcaaggc tccaaacaag ccctcccagc	240
ccccatcgag aaaaccatct ccaaagccaa agggcagccc cgagaaccac aggtgtacac	300
cctgccccca tcccgggagg agatgaccaa gaaccaggc agcctgaccc gcctggtcaa	360
aggcttctat cccagcgaca tcgcccgtgg agtgggagag caatggcag ccggagaaca	420
actacaagac cacgcctccc gtgctggact ccgacacctg ccggcggcc gctcga	476
<210> 165	
<211> 256	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(256)	
<223> n = A,T,C or G	
<400> 165	
agcgtggtn cggccgaggt cccaaccaag gctgcancct ggatgccatc aaagtcttct	60
gcaacatgga gactggtagg acctgcgtgt accccactca gcccagtgtg gcccagaaga	120
actggtagat cagcaagaac cccaaggaca agaggcatgt ctgttcggc gagagcatga	180
ccgatggatt ccagttcgag tatggcggcc agggctccga ccctgcccgt gtggacctgc	240
ccggcggnc gctcga	256
<210> 166	
<211> 332	
<212> DNA	
<213> Homo sapien	
<400> 166	
agcgtggtcg cggccgaggt caagaacccc gccccaccc gccgtgaccc caagatgtgc	60
cactctgact ggaagagtgg agagtagtgg attgacccca accaaggctg caacctggat	120
gccccatcaaag tcttctgcaa catggagact ggtgagaccc gctgttaccc cactcagccc	180
agtgtggccc agaagaactg gtacatcagc aagaacccc aggacaagag gcatgtctgg	240
ttcggcgaga gcatgaccga tggattccag ttcgagatgt gcggccaggg ctccgaccct	300
gccgatgtgg acctgcccgg gccccgcgtc ga	332
<210> 167	
<211> 332	
<212> DNA	
<213> Homo sapien	
<220>	

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<221> misc_feature
<222> (1)...(332)
<223> n = A,T,C or G

<400> 167
tcgagcggc gcccggcag gtccacatcg gcagggtcgg agccctggcc gccataactcg      60
aactggaatc catcggnat gctctcgccg aaccagacat gcctcttgnc cttgggttgc      120
ttgctgatgt accagntctt ctgggccaca ctgggctgag tgggtacac gcagggtctca      180
ccantctcca tggtgcanaa gactttgatg gcatccaggt tgcaagccttg gttgggtca      240
atccagtaact ctccactctt ccagacagag tggcacatct tgaggtcacg gcagggtgcgg      300
gcgggggtct tgacctcggt cgcgaccacg ct                                332

<210> 168
<211> 276
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(276)
<223> n = A,T,C or G

<400> 168
tcgagcggcc gcccggcag gtcctcctca gagcggtagc tgttcttatt gccccggcag      60
cctccataga tnaagttatt gcangagttc ctctccacgt caaatgtacca gcgtggaaag      120
gatgcacggc aaggcccagt gactgcgttgcgggtgcagt attcttcata gttgaacata      180
tcgctggagt ggacttcaga atcctgcctt ctgggagcac ttgggacaga ggaatccgct      240
gcattcctgc tgggtggacct cggccgcgac cacgt                                276

<210> 169
<211> 276
<212> DNA
<213> Homo sapien

<400> 169
agcgtggtcg cggcccgagggt ccaccagcag gaatgcagcg gattcctctg tcccaagtgc      60
tcccagaagg caggattctg aagaccactc cagcgatatg ttcaactatg aagaataactg      120
caccggcaac gcagtcactg ggccttgcgg tgcatccttc ccacgctgggt actttgacgt      180
ggagaggaac tcctgcaata acttcatcta tggaggctgc cggggcaata agaacagcta      240
ccgctctgag gaggacctgc cggccgcggcc gctcga                                276

<210> 170
<211> 332
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(332)
<223> n = A,T,C or G

<400> 170
tcgagcggcc gcccggcag gtccacatcg gcagggtcgg agccctggcc gccataactcg      60
aactggaatc catcggtcat gctctcgccg aaccagacat gcctcttgnc cttgggttgc      120
ttgctgatgt accagttctt ctgggccaca ctgggctgag tgggtacac gcagggtctca      180

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ccagtctcca tggcagaa gacttgatg gcatccagg tgcagcctg gttgggtca	240
atccagtaact ctccactttt ccagccagaa tggcacatct tgaggtcacg gcangtgcgg	300
gcggggttct tgacctcgcc cgccaccacg ct	332
<210> 171	
<211> 333	
<212> DNA	
<213> Homo sapien	
<400> 171	
agcgtggtcg cggccgaggt caagaaaccc cgcccgacc tgccgtgacc tcaagatgtg	60
ccactctggc tggaaagagt gagaatctg gattgacccc aaccaaggct gcaacctgga	120
tgcctatcaa gtcttctgca acatggagac tggtagagacc tgcgtgtacc ccactcagcc	180
cagtgtggcc cagaagaact ggtacatcag caagaacccc aaggacaaga ggcattgtctg	240
gctcggcgag agcatgaccc atggattcca gttcgagttt ggcggccagg gctccgaccc	300
tgccatgtg gacctgccc ggcggccgt cga	333
<210> 172	
<211> 527	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(527)	
<223> n = A,T,C or G	
<400> 172	
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actgttaagggt ttcttcatca gtgcacacag gatgacatga aatgtatgtac tcagaagtgt	120
cctgnaatgg ggcccatgan atgggtgnct gagagagagc ttcttgcctt acattccggcg	180
ggtatggtct tggcctatgc cttatgggg tggccgttgn gggcggtngt gtccgcctaa	240
aaccatgttc ctcaaaagatc atttggccca caacactggg ttgttgcacca naagtgccag	300
gaagctgaat accatttcca gtgtcatacc cagggtgggt gacgaaagggt gtcgtttgaa	360
ctgtggaaagg aacatccaag atctctgncc catgaagatt ggggtgttggaa agggtttacca	420
gttggggaaag ctcgtgtct ttttcccttcc aatcangggc tcgttcttctt gaatattttt	480
cagggaatgtt acataaaattt tatattcggt tcccggttcc agggccag	527
<210> 173	
<211> 635	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(635)	
<223> n = A,T,C or G	
<400> 173	
tcgagcggcc gccccggcag gtccaccaca cccaaatttct tgcgtgtatc atggcagccg	60
ccacgtgcctt ggattaccgg ctacatcatc aagtatgaga agcctgggtc tcctccctt	120
gaagtggtcc ctcggccccc ccctgggttc acagaggcta ctattactgg cctggaccgg	180
ggaaccgaat atacaattt tgcatttgcctt ctgaaaata atcagaagag cgagccctt	240
atggaaaggtt aaaagacaga cgagcttccc caactggtaa cccttccaca ccccaatctt	300
catggaccat agatcttggta tggcccttcc acagttcaaa agacccctt cgtcaccac	360

cctgggtatg acactggaaa tggtattcag cttcctggca cttctggta gcaaccagt	420
gttggcaac aaatgatctt tgangaacat ggnttaggc ggaccacacc ggccacaacg	480
ggcacccca taaggcatac gccaagaaca tacccgnca atgtaggaca agaagctcn	540
tctcanacaa ncatctcatg ggcccattc cangacactt ctgagtgatc canttcatgg	600
catcctggtg gcactgataa aaacccttac agtta	635
<210> 174	
<211> 572	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(572)	
<223> n = A,T,C or G	
<400> 174	
agcgtggtcg cggcgaggt cctgtcagag tggcactgg agaagttcca ggaaccctga	60
actgttaagggt ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagtgt	120
cctggaaatgg ggcccatgag atgggtgtct gagagagagc ttcttgcct acattcggcg	180
ggtatggtct tggcctatgc cttatgggg tggccgttgt gggcggtgtg gtccgcctaa	240
aaccatgttc ctcaaagatc atttgttgc caacactggg ttgctgacca gaagtgccag	300
gaagctgaat accatttcca gtgtcataacc cagggtgggt gacgaaagggt gtctttgaa	360
ctgtggaaagg aacatccaag atctctggtc catgaagatt ggggtgtgga agggttacca	420
gttgggaaag ctcgtctgtc ttttccttc caatcanggg ctcgccttc tgattattct	480
tcagggcaat gacataaatt gtatattcgg ntcccggttn cagccaataa taataaccct	540
ctgtgacacc anggcggggc cgaagganca ct	572
<210> 175	
<211> 372	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(372)	
<223> n = A,T,C or G	
<400> 175	
agcgtggtcg cggccgaggt cctcaccaga ggtaccacct acaacatcat agtggaggca	60
ctgaaagacc agcagaggca taaggttcgg gaagagggtt ttaccgtggg caactctgtc	120
aacgaaggct tgaaccaacc tacggatgac tcgtgcttg acccctacac agtttcccat	180
tatgccgttg gagatgagtg ggaacgaatg tctgaatcag gctttaact gttgtgccag	240
tgcttangct ttggaaagtgg tcatttcaga tgtgattcat ctagatggtg ccatgacaat	300
ggtgtgaact acaagattgg agagaagtgg gaccgtcagg gagaaaaatgg acctgccccgg	360
cgccgcgtc ga	372
<210> 176	
<211> 372	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(372)	

<223> n = A,T,C or G

<400> 176

tcgagcggcc	gcccgccggcag	gtccatttc	tccctgacgg	tcccaacttct	ctccaatctt	60
gtagttcaca	ccattgtcat	ggcacccatct	agatgaatca	catctgaaat	gaccacttcc	120
aaaggctaag	cactggcaca	acagttaaa	gcctgattca	gacattcggt	cccactcata	180
tccaaacggca	taatggaaa	ctgtgttaggg	gtcaaagcac	gagtcatccg	taggttggtt	240
caaggccttcg	ntgacagagt	tgcccacggt	aacaacctct	tcccgaaacct	tatgcctctg	300
ctggtgtttc	agtgcctcca	ctatgatgtt	gtaggtggta	cctctgggtga	ggacacctcgcc	360
cgcgaccacg	ct					372

<210> 177

<211> 269

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(269)

<223> n = A,T,C or G

<400> 177

agcgtggccg	cggccggaggt	ccattggctg	gaacggcatc	aacttggaaag	ccagtgtatcg	60
tctcagcctt	ggttctccag	ctaatggtga	tggnggtctc	agtagcatct	gtcacacgag	120
cccttcttgg	tgggctgaca	ttctccagag	tggtgacaac	accctgagct	ggtctgttgc	180
tcaaagtgtc	cttaagagca	tagacactca	tttcatat	ggcgncacc	ataagtcctg	240
atacaaccac	ggaatgac	gtcaggaac				269

<210> 178

<211> 529

<212> DNA

<213> Homo sapien

<400> 178

tcgagcggcc	gcccgccggcag	gtcctcagac	cgggttctga	gtacacagtc	agtgtggttg	60
ccttgacgca	tgatatggag	agccagcccc	tgatttggaaac	ccagtcacaca	gctattccctg	120
caccaactga	cctgaagttc	actcaggta	cacccacaag	cctgagcgcc	cagtggacac	180
cacccaaatgt	tcaagtcact	ggatatcgag	tgcgggtgac	ccccaaaggag	aagaccggac	240
caatgaaaga	aatcaacctt	gctcctgaca	gctcatccgt	ggttgtatca	ggacttatgg	300
cggccaccaa	atatgaagtg	agtgtctatg	ctcttaagga	cacttgaca	agcagaccag	360
ctcagggtgt	tgtcaccact	ctggagaatg	tcagccacc	aagaagggt	cgtgtgacag	420
atgctactga	gaccaccatc	accattagct	ggagaaccaa	gactgagacg	atcactggct	480
tccaaagtgt	tgccgttcca	gccaatggac	ctcgcccg	accacgctt		529

<210> 179

<211> 454

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(454)

<223> n = A,T,C or G

<400> 179

agcgtggtcg cggccgaggt ctggccgaac tgccagtgt a cagggaaat gtacatgtta	60
tagntcttct cgaagtcccg ggccagcagc tccacggggt ggtctcctgc ctccaggcgc	120
ttctcattct catggatctt cttcacccgc agcttctgtct tctcagtcag aagggttgttgc	180
tcctcatccc tctcatacag ggtgaccagg acgttcttga gccagtcggc catgcgcagg	240
ggaaattcgg tcagctcaga gtccaggcaa gggggatgt atttgcagg cccgatgttag	300
tccaagtggta gcttggcc cttcttggtg ccctccaagg tgcactttgt ggcaaaagaag	360
tggcaggaag agtcgaaggt cttgttgtca ttgctgcaca cttctcaaa ctcgc当地atg	420
ggggctgggc agacctgccc gggcggccgc tcga	454
<210> 180	
<211> 454	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(454)	
<223> n = A,T,C or G	
<400> 180	
tcgagcggcc gccccggcag gtctgcccag ccccccattgg cgagttttag aaggngtgca	60
gcaatgacaa caagacccctc gactcttctt gccacttctt tgccacaaaag tgcacccctgg	120
agggcaccaa gaaggccac aagctccacc tggactacat cgggccttgc aaatacatcc	180
cccctgcctt ggactcttgc ctgaccgaat tcccccttgc catgcgggac tggctcaaga	240
acgtccttgcgtt caccctgtat gagagggatg aggacaacaa cttcttgcact gagaagcana	300
agctgcgggtt gaagaanatc catgagaatg anaagcgcct gnaggcanga gaccaccccg	360
tggagctgtctt ggcccgccac ttcgagaaga actataacat gtacatcttc cctgtacact	420
ggcagttcgg ccagacccctc ggcgcgacca cgct	454
<210> 181	
<211> 102	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(102)	
<223> n = A,T,C or G	
<400> 181	
agcgtggntg cggacgacgc ccacaaagcc attgtatgt a gttttanttc agctgc当地an	60
aataccncca gcatccaccc tactaaccag catatgcaga ca	102
<210> 182	
<211> 337	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(337)	
<223> n = A,T,C or G	
<400> 182	
tcgagcggtc gccccggcag gtctggccgg atagcaccgg gcatattttgaatggatga	60

ggtctggcac cctgagcagc ccagcgagga cttggcttta gttgagcaat ttggcttagga	120
ggatagtatg cagcacgggt ctgagtcgt gggatagctg ccatgaagna acctgaagga	180
ggcgctggct ggtanggggtt gattacaggc ctgggaacag ctcgtacact tgccatttcc	240
tgcataatact ggntagtgtag gcgagcctgg cgcttctt tgcgctgagc taaagctaca	300
tacaatggct ttngggacct cggccgcgac cacgctt	337
<210> 183	
<211> 374	
<212> DNA	
<213> Homo sapien	
<400> 183	
tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt	60
gtagttcaca ccattgtcat gacaccatct agatgaatca catctgaaat gaccacttcc	120
aaagcctaag cactggcaca acagttaaa gcctgattca gacattcggtt cccactcatc	180
tccaaaggca taatgggaaa ctgtgttaggg gtcaaagcac gagtcatccg taggttgggt	240
caagccttcg ttgacagaag ttgcccacgg taacaacccctt ttcccaacc ttatgcctct	300
gctggtcttt caagtgcctc cactatgatg ttgttaggtgg cacctctgggt gaggacotcg	360
gccgcgacca cgct	374
<210> 184	
<211> 375	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(375)	
<223> n = A,T,C or G	
<400> 184	
agcgtgtttt gccccggagg tcctcaccan aggtgccacc tacaacatca tagtggaggc	60
actgaaagac cagcagaggc ataagttcg ggaagaggtt gttaccgtgg gcaactctgt	120
caacgaaggc ttgaaccaac ctacggatga ctcgtgtt gacccttaca cagnntccca	180
ttatgccgtt ggagatgagt gggAACGAAT gtctgaatca ggctttaaac tgggtgtgcca	240
gtgcttangc ttggaaagtgt gtcatttcag atgtgattca tctanatgggt gtcatgacaa	300
tggtnngaac tacaagattt gagagaagtg gnaccgtca ggganaaaaat ggacctgccc	360
ggcgccncg ctcga	375
<210> 185	
<211> 148	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(148)	
<223> n = A,T,C or G	
<400> 185	
agcgtgtcg cggccgaggt ctggcttnt gctcangtga ttatcctgaa ccatccaggc	60
caaataagcg cccgctatgc ccctgnattt gattgccaca cggctcacat tgcgtgcaag	120
tttgctgagc tgaaggaaaa gattgatc	148
<210> 186	

<211> 397
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(397)
 <223> n = A,T,C or G

<400> 186

tcgagcggcc gcccgggcag gtccaaattga aacaaacagt tctgagaccg ttcttccacc	60
actgattaag agtggggnngg cgggttattag ggataatatt catttagcct tctgagcttt	120
ctggcagac ttggtgacct tgccagctcc agcagccctc tggccactg ctttgatgac	180
acccaccgcgca actgtctgtc tcataatcacg aacagcaaag cgacccaaag gtggatagtc	240
tgagaagctc tcaacacaca tgggttgcc aggaaccata tcaacaatgg gcagcatcac	300
cagacttcaa gaatttaagg gccatcttcc agcttttac cagaacggcg atcaatctt	360
tccttcagct cagcaaactt gcatgcaatg tgagccg	397

<210> 187
 <211> 584
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(584)
 <223> n = A,T,C or G

<400> 187

tcgagcggcc gcccgggcag gtccagaggg ctgtgctgaa gtttgctgct gccactggag	60
ccactccaat tgctggccgc ttcaactcctg gaaccttcac taaccagatc caggcagcct	120
tccgggagcc acggcttctt gtggntactg acccccaggc tgaccaccag cctctcacgg	180
aggcatctta tgttaaccta cctaccattt cgctgtgtaa cacagattct cctctgcgct	240
atgtggacat tgccatccca tgcaacaaca agggagctca ctcagnnnnnn tttgatgtgg	300
tggatgctgg ctcgggaagt tctgcgcatt cgtggcacca tttccctgtga acacccatgg	360
gangncatgc ctgatctgaa cttctacaga gatcctgtaa agattgaaaa agaagaacag	420
gctgnttgct gananagcaa gtgaccaagg angaaattt angggtgaaa nggactgctc	480
ccgctcctga attcaactgt actcaacctg angntgcaga ctggcttga aggngnacan	540
gggcctctg gcctattta agcanctcg gtcgcgaaca cgnt	584

<210> 188
 <211> 579
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(579)
 <223> n = A,T,C or G

<400> 188

agcgtgngtc gcggccgagg tgctgaatag gcacagaggg caccgtaca cttcagacc	60
agtctgcaac ctcaggctga gtagcagtga actcaggagc gggagcgtc cattcacccct	120
gaaatccctc cttggncact gccttctcg cagcagcctg ctcttcttt tcaatctctt	180
caggatctct gtagaagtac agatcaggca tgacctccca tgggtgttca cggaaatgg	240

tgccacgcat	gcmcagaact	tcccggcca	gcattccacca	catcaaacc	actgagttag	300
ctcccttgg	gttgcattgg	atgggcaat	tccacatagc	cgaggagaga	atctgttgtt	360
cacagcgcaa	tggtaggtag	gttaacataa	gatgcctcc	cgagaagctg	gtggtcagcc	420
ctgggttcaa	gtaaccacaa	gaagccgtgg	ctcccgaaag	gctgcctgg	tctggtagt	480
gaaggntcca	ggagtgaagc	ggccaaacaat	tggagtggct	tcagtggcaa	gcagcaaact	540
tcagcacaag	ccctctggac	ctgcccggcg	gccgctcga			579
<210> 189						
<211> 374						
<212> DNA						
<213> Homo sapien						
<220>						
<221> misc_feature						
<222> (1)...(374)						
<223> n = A,T,C or G						
<400> 189						
tcgagcggcc	gcccgggcag	gtccattttc	tccctgacgg	nccacttct	ctccaatctt	60
gtagttcaca	ccattgtcat	ggcacatct	agatgaatca	catctgaaat	gaccacttcc	120
aaagcctaag	cactggcaca	acagttaaa	gcctgatca	gacattcg	cccactctac	180
tccaaacggca	taatgggaaa	ctgtgttaggg	gtcaaqaqcac	gagtcatccg	tagttgggt	240
caagccttcg	ttgacagagt	tgcccacgt	aacaacctcn	tcccccgaacc	ttatgcctct	300
gctgggcttt	cagngctcc	actatgatgn	tgttaggggg	cacctctgg	gangacctcg	360
gccgcgacca	cgct					374
<210> 190						
<211> 373						
<212> DNA						
<213> Homo sapien						
<220>						
<221> misc_feature						
<222> (1)...(373)						
<223> n = A,T,C or G						
<400> 190						
agcgtggtcg	cgcccgagg	cctcaccaga	ggtgccac	acaacatcat	agtggaggca	60
ctgaaaagacc	agcagaggca	taaggctcg	gaagagg	ttaccgtgg	caactctgtc	120
aacgaaggct	tgaaccaacc	tacgatgac	tcgtgttt	accctacac	agtttccat	180
tatgccgtt	gagatgagtg	ggaacgaat	tctgaatc	gctttaact	gttgtgccag	240
tgcttangct	ttggaagtgg	gtcatttc	atgtgatca	tctagatgg	gccatgacaa	300
tggngnngaac	tacaagattg	gagagaagt	gnaccgnac	ggagaaaat	gacctgccc	360
ggcggccgct	cga					373
<210> 191						
<211> 354						
<212> DNA						
<213> Homo sapien						
<220>						
<221> misc_feature						
<222> (1)...(354)						
<223> n = A,T,C or G						

<400> 191

agcgtggtcg	cggccgaggt	ccacatcgcc	agggtcgag	ccctggccgc	cataactcgaa	60
ctggaatcca	tcggatcatgc	tctcgccgaa	ccagacatgc	ctttgtcct	tggggttctt	120
gctgtatgtac	cagttcttct	gggccacact	gggctgagtg	gggtacacgc	aggcttcacc	180
agtctccatg	ttgcagaaga	cttgcgatggc	atccaggntg	caaccttggt	tggggtaat	240
ccagtagtct	ccactcttcc	agccagagtg	gcacatcttgc	aggtcacggc	aggtgccgnc	300
gggggntttt	ggggctgccc	tctggncatc	ggntgtntc	natctgctgg	ctca	354

<210> 192

<211> 587

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(587)

<223> n = A,T,C or G

<400> 192

tcgagcggcc	ccccggggcag	gtctcgccgt	cgcactggtg	atgctggtcc	tgttggtccc	60
cccgccctc	ctggacctcc	tggcccccct	ggtcctccca	gcgcgtggtt	cgacttcagc	120
ttcctgcccc	agccacccca	agagaaggct	cacgatggtg	gccgcata	ccgggctgat	180
gatgccaatg	tggttcgta	ccgtgacccctc	gagggtggaca	ccacccctaa	gagcctgagc	240
cagcagatcg	agaacatccg	gagcccagag	ggcagncgca	agaaccccgcc	ccgcacccgc	300
cgtgacccctca	agatgtgcca	ctctgactgg	aagagtggag	agtactggat	tgaccccaac	360
caagctgcaa	cctggatgcc	atcaaagtct	tctgcaacat	ggagactgg	gagacctgag	420
tgtacccac	tcagcccaat	gtggcccaaa	agaactggta	catcagcaag	aaccccaagg	480
acaagaagca	tgtctgggtc	ggcgagaaca	tgaccgatgg	attccagttc	gagtatggcg	540
ggcaggggctc	cgaccctgcc	gatggggacc	ttggccgcga	acacgct		587

<210> 193

<211> 98

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(98)

<223> n = A,T,C or G

<400> 193

agcgtgnng	cggccgaggt	ataaaatatcc	agnccatatac	ctccctccac	acgctganag	60
atgaagctgt	ncaaagatct	cagggtggan	aaaaccat			98

<210> 194

<211> 240

<212> DNA

<213> Homo sapien

<400> 194

tcgagcggcc	ccccggggcag	gtcccttcaga	cttggactgt	gtcacactgc	caggcttcca	60
gggctccaa	ttgcagacgg	cctgttgtgg	gacagtctct	gtaatcgca	aagcaaccat	120
ggaagacctg	ggggaaaaaca	ccatggtttt	atccaccctg	agatcttga	acaactctat	180
ctctcagcgt	gcggaggagg	gctctggact	ggatatttct	acctcggccg	cgaccacgct	240

<210> 195
 <211> 400
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 195
 cgagcgggcg accgggcagg tncagactcc aatccanana accatcaagc cagatgtcag 60
 aagctacacc atcacaggtt tacaaccagg cactgactac aaganctacc tgcacaccc 120
 gaatgacaat gctcgagct cccctgtggt catcgacgcc tccactgcca ttgatgcacc 180
 atccaacctg cgtttcctgg ccaccacacc caattccttg ctgttatcat ggcagccgccc 240
 acgtgccagg attaccggta catcatcnag tatganaagc ctgggcctcc tcccagagaa 300
 gnggtccctc ggccccgccc tgntgtccca nagntacta ttactgngcc ngcaaccggc 360
 aaccgataatc natttgnca ttggccttca acaataatta 400

<210> 196
 <211> 494
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(494)
 <223> n = A,T,C or G

<400> 196
 agcgtggttc gcggccgang tcctgtcaga gtggcactgg tagaagttcc aggaaccctg 60
 aactgttaagg gttcttcatc agngccaaca ggtatgacatg aaatgtatgtt ctcagaagtgc 120
 tcctgaaatgggcccattgtatc gatgggttgc tgagagagag cttcttgncc tgcgttttc 180
 cttccaatca ggggctcgct cttctgatta ttcttcaggc caatgacata aattgtatata 240
 tcgggtcccg gntccaggcc agtaatagta ncctctgtga caccaggcg gngccgaggg 300
 accacttctc tgggaggaga cccaggcttc tcataacttga tgatgttaacc ggtaatcctg 360
 gcacgtggcg gtcgtccatgtatc taccagcaag gaattgggggt gtggtgccca ggaaacgcag 420
 gttggatggncatcaatgg cagtggaggc cgtcgatgac cacaggggaa gctccgacat 480
 tgtcattcaa ggtg 494

<210> 197
 <211> 118
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(118)
 <223> n = A,T,C or G

<400> 197
 agcgtggncgcg cggccgagggt gcagcgcggg ctgtgccacc ttctgctctc tgcccaacgta 60
 taaggagggt ncctgcccccc aggagaacat taactntccc cagctcgcc tctgccc 118

<210> 198

<211> 403
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(403)
<223> n = A,T,C or G

<400> 198

tcgagcggcc gcccgggcag gtttttttgc	ctgaaaatgg ntactttatt ggntgggaaa	60
gggagaagct gtggtcagcc caagaggaa tacagagncc	cgaaaaaggg gagggcaggt	120
gggctggAAC cagacgcagg gccaggcaga aactttctct	cctcaactgtc cagcctggtg	180
gtggctggAG ctcanaaatt gggagtgaca caggacacct	tcccacagcc attgcggcgg	240
catttcatct ggccaggaca ctggctgtcc acctggcaact	ggtcccgaca gaagcccgag	300
ctggggAAAG ttaatgttca cctggggca ggaaccctcc	ttatcattgn gcagagagca	360
gaaggtggca cagccgcgc tgcacctcg	ccgcgaccac gct	403

<210> 199
<211> 167
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(167)
<223> n = A,T,C or G

<400> 199

tcgagcggcc gcccgggcag gtccaccata agtcctgata	caaccacgga tgagctgtca	60
ggagcaaggt tgatttcttt cattggtccg gncttctcct	tgggggnac ccgcactcga	120
tatccagtga gctgaacatt gggggcgtc cactggcgc	tcaggct	167

<210> 200
<211> 252
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(252)
<223> n = A,T,C or G

<400> 200

tcgagcgggt cgccccggca ggtccaccac acccaattcc	ttgctggtat catggcagcc	60
gccacgtgcc aggattaccc gctacatcat	caagtatgg aagcctgggt ctcctcccag	120
agaagcggtc ctcggcccc gccctgggt	cacagagct actattactg gcctggaaacc	180
gggaaccgaa tataacaattt atgtcattgn	cctgaagaat aatcannaan agcgancccc	240
tgatttggaa	ga	252

<210> 201
<211> 91
<212> DNA
<213> Homo sapien

<400> 201
 agcgtggtcg cggccgaggt tgtacaagct tttttttttt tttttttttt tttttttttt 60
 tttttttttt tttttttttt tttttttttt t 91

<210> 202
 <211> 368
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(368)
 <223> n = A,T,C or G

<400> 202
 tcgagcggnc gccccggcag gtctgccaac accaagattg gccccggcg catccacaca 60
 gtccgtgtgc ggggaggtaa caagaaatac cgtgccctga ggttggacgt ggggaatttc 120
 tcctgggct cagagtgttg tactcgtaaa acaaggatca tcgatgttgt ctacaatgca 180
 tctaataacg agctggttcg taccaaagacc ctggtaaga attgcattcg gctcatcgac 240
 agcacaccgt accgacagtg gtacgagtcc cactatgcgc tgcccctggg ccgcaagaag 300
 ggagccaagc tgactcctga ggaagaagag attttaaca aaaaacgatc taanaaaaaa 360
 aaaacaat 368

<210> 203
 <211> 340
 <212> DNA
 <213> Homo sapien

<400> 203
 agcgtggtcg cggccgaggt gaaatggat tcagcttctt ggcaacttctg gtcagcaacc 60
 cagtgttggg caacaaatgta tctttgagga acatggttt aggccgacca caccgcccac 120
 aacggccacc cccataaggc atagggcaag accatacccg ccgaatgttag gacaagaagc 180
 tctctcttag acaaccatct catggggccc attccagac acttctgagt acatcatttc 240
 atgtcatcct gttggcactg atgaagaacc cttacagttc agggttcctg gaacttctac 300
 cagtgccact ctgacaggac ctgcccggc ggccgctcga 340

<210> 204
 <211> 341
 <212> DNA
 <213> Homo sapien

<400> 204
 tcgagcggcc gccccggcag gtcctgtcag agtggcactg gtagaagttc caggaaccct 60
 gaactgtaag gtttcttcat cagtccaaac aggatgacat gaaatgtatgt actcagaagt 120
 gtcctggaat ggggccccatg agatggttgt ctgagagaga gcttcttgc ctacatcgg 180
 cgggtatggt cttggcctat gccttatggg ggtggccgtt gtggccgtg tggtccgcct 240
 aaaaccatgt tcctcaaaga tcattgttg cccaacactg ggttgctgac cagaagtgcc 300
 aggaagctga ataccatttc acctcgcccg cgaccacgct a 341

<210> 205
 <211> 770
 <212> DNA
 <213> Homo sapien

<220>

<221> misc_feature
 <222> (1)...(770)
 <223> n = A,T,C or G

<400> 205

tcgagcggcc	ccccgggcag	gtctccctc	ttgcggcca	ggggcagcgc	atagtggac	60
tcttaccact	gtcggtacgg	tgtgtgtcg	atgagcacga	tgcatttttcaattt	caccagggtc	120
tttgtacgaa	ccagctcggt	atttagatgc	ttgttagacaa	catcgatgtat	ccttggttta	180
cgagtacaac	actctgagcc	ccaggagaaa	ttcccccacgt	ccaacctcag	ggcacggtat	240
ttcttggta	ctcccccac	acggactgtg	tggatgcggc	gggggccaag	ctgactcctg	300
aggaagaaga	gattttaaac	aaaaaacat	ctaaaaaaaaat	tcagaagaaa	tatgtatgaaa	360
ggaaaaaagaa	tgccaaaatc	agcagtctcc	tggaggagca	gttccagcag	ggcaagcttc	420
ttgcgtgcat	cgcttcaagg	ccggacacgt	gtgaccgagc	agatggctat	gtgcttagagg	480
gcaaagaagt	ggagttctat	cttaagaaaa	tcagggccca	aatggtgng	tcttcaacta	540
atccaaagg	gagtttcaga	ccagtgcata	cagaaaaaac	attgatactg	ntggccaaat	600
ttatttgc	agggttgc	cantangann	ggctgggtct	tggggcttgg	attggnacaa	660
gctttggcag	cctttctt	ggtttgcca	aaaaccttt	gntgaagang	anacctnggg	720
cggaccctt	aaccgattcc	acnccngng	gcgttctang	gncccnctt		770

<210> 206
 <211> 810
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(810)
 <223> n = A,T,C or G

<400> 206

agcgtggtcg	cggccgaggt	ctgctgcttc	agcgaagggt	ttctggcata	accaatgata	60
aggctgccaa	agactgttcc	aataccagca	ccagaaccag	ccactcctac	tgttgcagca	120
cctgcaccaa	taaatttggc	agcaqtatca	atgtctctgc	tgattgcact	ggtctgaaac	180
tcccttgg	ttagctgaga	cacaccattc	tggggccctga	ttttcctaag	atagaactcc	240
aactcttgc	cctctagcac	atagccatct	gctcggtcac	actgtcccgg	ccttgaagcg	300
atgcacgcaa	gaagcttgc	ctgctggaac	tgctccctca	ggagactgct	gattttggca	360
ttcttttcc	tttcatcata	tttcttctga	attttttag	atcgttttt	gtttaaaatc	420
tcttcttcc	caggagtca	cttggccccc	gccgcattca	cacagtccgt	gtgcggggag	480
gtaacaagaa	ataccgtgcc	ctgaggttgg	acgtggggaa	tttctcttgg	ggctcagagt	540
ggtgtactcg	taaaacaagg	atcatcgatg	gtgnctacaa	tgcattctaat	aacgagctgg	600
gtcggaccca	aagaacctgg	ngaanaaatg	gatcgncatca	tgcacaggac	accgtacccg	660
acaggggnac	gantcccact	atgcgttgc	ccctggccg	caanaaaagga	aaactgccc	720
ggcggccntc	gaaagccaa	ttntggaaaa	aatccatcac	actgggnggc	cngtcgagca	780
tgcattana	ggggccatt	ccccctnann				810

<210> 207
 <211> 257
 <212> DNA
 <213> Homo sapien

<400> 207

tcgagcggcc	ccccgggcag	gtcccaacc	aaggctgcaa	cctggatgcc	atcaaagtct	60
tctgcaacat	ggagactgt	gagacctgcg	tgtacccac	tcagcccagt	gtggcccaaga	120
agaactggta	catcagcaag	aaccccaagg	acaagaggca	tgtctggttc	ggcgagagca	180
tgaccgatgg	attccagttc	gagtatggcg	gccaggctc	cgaccctgcc	gatgtggacc	240

tcggccgcga ccacgct	257
<210> 208	
<211> 257	
<212> DNA	
<213> Homo sapien	
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gctgatgtac cagttttctt gggccacact gggctgagtg gggcacacgc aggtctcacc	180
agtctccatg ttgcagaaga ctttgatggc atccaggttg cagccttggt tggggacctg	240
cccgccgcgc cgctcga	257
<210> 209	
<211> 747	
<212> DNA	
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<220>	
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<222> (1)...(747)	
<223> n = A,T,C or G	
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ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctgggtc tcctcccaga	120
gaagtgtcc ctggccccgg ccctgggtgc acagaggcta ctattactgg cctggAACCG	180
ggaaccaat atacaattta tgtcattgcc ctgaagaata atcagaagag cgagccccctg	240
attggaaagga aaaagacaga cgagcttccc caactggtaa cccttccaca ccccaatctt	300
catggaccag agatcttggg tggtccttcc acagttcaaa agacccctt cgtcaccac	360
cctgggtatg acactggaaa tggtatttcg cttcctggca cttctggta gcaacccagt	420
gttggcaac aaatgatctt tgaggaacat gnnttaggc ggaccacacc gcccacaacg	480
gccaccccca taaggcatag gccaagacca taccggccga atgtaggaca agaagctn	540
tntcanacac cattnatgg gccccattcc aggacacttc tgagtagatc atttatgnca	600
tctgtggcac ttgatgaaaa cccttacagt tcagggttct ggaactttt ccaggcctnt	660
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<211> 872	
<212> DNA	
<213> Homo sapien	
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<221> misc_feature	
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<223> n = A,T,C or G	
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catcatggag agtggggcca aaggctgcga gttgtgggt tctngaaac tccnaggaca	180
ngaggctaa attccatgaa gtttggat ggcctgtatga tccacaatcg gagaccctgt	240
taactactac cgtctnaccc cctgctgtnc nccccnttt ctgctnaana catngggntn	300

ntncttgnc	ntccttgggt	ngaanatnna	atngcctncc	cnttcntanc	nctactngnt	360
ccananttgg	cctttaaaa	atccncctg	ccttnnncac	tgttcanntn	tttnntcgta	420
aaccctatna	nttnnattan	atnnnnnnn	nctcaccccc	ctcntcattn	anccnatang	480
ctnnnaantc	cttnannctt	cccncnnnt	ncnctcntac	tnantncttc	tnnccattt	540
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ncnctncaac	ttatttctt	ntcatccctt	nttctttaca	nncccccctnn	tctactcnnc	780
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<220>						
<221>	misc_feature					
<222>	(1)...(517)					
<223>	n = A,T,C or G					
<400>	211					
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tatctcatct	ttgggttcca	caatgctcac	gtggtcaggc	aggggcttct	tagggccaaat	180
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gagcaacacg	tgccgcaccaa	gcagtgtcaa	cgttagtaagt	taacagggtc	tccgctgtgg	300
atcatcaggc	catccacaaa	cttcatggat	ttagccctct	gtcctcggag	tttcccagac	360
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<210>	212					
<211>	695					
<212>	DNA					
<213>	Homo sapien					
<220>						
<221>	misc_feature					
<222>	(1)...(695)					
<223>	n = A,T,C or G					
<400>	212					
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<210> 213
 <211> 804
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(804)
 <223> n = A,T,C or G

<400> 213
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 cagaaattcc atttggagaa ttttgtgcag tttgcccaca gcctccaact gctcctactc 420
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 ctgggagaaa tggtgaccct ggtattccag gacaaccagg gtcccctggt tctcctggcc 540
 cccctggaaat cngnngaatc atgcctact ggtcctcaaa ctattctccc anatgattca 600
 tatgatgtca agtctggat agcnagtang ganggactcg cagctattc tggaccanac 660
 ctgccggggg ggcgttcgaa agccgaatc tgcanannntn cntcacact ggcggccgtc 720
 gagctgcttt aaaaggccca ttccncctt agngnggggg antacaatta ctngggccggc 780
 ttttanancg cgngnctggg aaat 804

<210> 214
 <211> 594
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(594)
 <223> n = A,T,C or G

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 ccagtactct ccacttcc agtcagatg gcacatctt aggtcacccgc aggtgcgggc 300
 ggggttctt cggctccct ctggctccg gatgttctt atctgctggc tcaggctt 360
 gaggggtggg tccacctcga ggtcacggc acgaaccaca ttgcacatcat cagccccgt 420
 gtagccgcca ccatcgttag cttcttctt angtggctgg ggcaggact gaagtgcgaaa 480
 ccagcgctgg gaggaccagg gggaccaana ggtccaggaa gggccgggg gggaccaaca 540
 ggaccacat caccaagtgc gaccgcgag aacctgccc gccgnccgct cgaa 594

<210> 215
 <211> 590
 <212> DNA
 <213> Homo sapien

<220>

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<221> misc_feature
<222> (1)...(590)
<223> n = A,T,C or G

<400> 215
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ccccggccctc ctggacacctcc tggttccccct ggtcctccca gcgcgtggtt cgacttcagc      120
ttcctgcccc agccacacctca agagaaggct cacgatggtg gccgctacta ccgggctgat      180
gatgccaatg tggttcggtga ccgtgacctc gaggtggaca ccaccctcaa gagcctgagc      240
cagcagatcg agaacatccg gagcccagag ggcagccgca agaaccggc cccgacacctgc      300
cgtgacacctca agatgtgccca ctctgactgg aagagtggag agtactggat tgacccaaac      360
caaggctgca acctggatgc catcaaagtc ttctgcaaca tggagactgg tgagacactgc      420
gtgtacccca ctcagcccaag tggggcccaag aagaactggt acatcagcaa gaaccccaag      480
gacaagaggc atgtctgggtt cggcgagagc atgaccgatg gattccagtt cgagtatggc      540
ggccagggct cccaccctgc cgatgtggac ctccggccgc gaccaccctt      590

<210> 216
<211> 801
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(801)
<223> n = A,T,C or G

<400> 216
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agggtgctcg tggttccct ggaactcctg gacttcctgg cttaaaggc attagggac      180
acaatggtct ggatggattt aaggcacagc ccgggtctcc tgggtgtgaag ggtgaacctg      240
gtgcccctgg taaaaatgga actccaggc aaacaggagc ccgtgggctt cctggtgaga      300
gaggaccgtg ttggtgcctt tggcccanac ctcggccgcg accacgctaa gcccgaattt      360
ccagcacact ggngggccgtt actantggat ccgagctcgg taccaaagctt ggcgtaatca      420
tggtcatacg tggttcctgn gtgaaattgt tatccgctca caatttcaca cancatacga      480
agccggaaag cataaaagtgt aaaggcttgg ggtgctaattt agtgagctaa ctcncattaa      540
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ttaantgaaa tccgcccnaacc cccggggaaa agncggtttgc cngtatttggg gcnccttttc      660
ccttcctcg gnttacttga ntantggc tttggncgt tcgggttggng ggcancnggt      720
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aaaacatnng ncnaangggc t      801

<210> 217
<211> 349
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(349)
<223> n = A,T,C or G

<400> 217
agcgtggtn gcgcccgagg tctggccag gggcaccaac acgtcctctc tcaccaggaa      60
gcccacgggc tcctgtttga cctggagttc cattttcacc aggggcacca gtttcaccct      120

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actcctctct	caccaggctcg	tccgggtttt	ccagggtgac	catttcacc	agccttgccca	300
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<210> 218						
<211> 372						
<212> DNA						
<213> Homo sapien						
<400> 218						
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aacgaaggct	tgaaccaacc	tacggatgac	tcgtgctttg	acccttacac	agtttcccat	180
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tgcttaggct	ttggaagtgg	tcatttcaag	atgtgattca	tctagatgg	ccatgacaa	300
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<210> 220						
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<212> DNA						
<213> Homo sapien						
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<221> misc_feature						
<222> (1)...(828)						
<223> n = A,T,C or G						
<400> 220						
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accgagatat	tccttctgcc	actgttctcc	tacgtggtat	gtcttccat	catcgtaaca	180
cgttgcctca	ttaggggtcac	acttgaattc	tcctttccg	ttcccaagac	atgtgcagct	240
catttggctg	gctctatagt	ttggggaaag	tttggtaaa	ctgtgccact	gaccttact	300
tcctccttct	ctactggagc	tttgcgtacct	tccacttctg	ctgtggtaa	aatggtggt	360
cttctatcaa	tttcattgac	agtaccact	tctccaaac	atccaggaa	atagtgattt	420
cagagcgtt	aggagaacca	aattatgggg	cagaaataag	gggtttcc	acaggtttc	480
ctttggagga	agatttcagt	ggtgacttta	aaagaatact	caacagtgtc	ttcatcccc	540
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tcanaaagga cccaaatggc nccatggca gcactttag cctttccct ggggaaaann	720
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<223> n = A,T,C or G	
<400> 229	
nggnnggtcc ggncngncag gaccactcnt cttcgaaata	40
<210> 230	
<211> 208	
<212> DNA	
<213> Homo sapien	
<400> 230	
agcgtgtcg cgcccgaggt cctcacttgc ctccctgaaa gcaccgatacg ctgcgctctg	60
gaagcgccaga tctgttttaa agtcctgagc aatttctcgc accagacgct ggaagggaag	120
tttgcgaatc agaagttcaag tggacttctg ataacgtcta atttcacgga gcccacagt	180
accaggacct gcccgccgg ccgctcga	208
<210> 231	
<211> 208	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(208)	
<223> n = A,T,C or G	
<400> 231	
tcgagcgcc gcccgccgcaag gtccctggta tgnggcgtc cgtgaaatta gacgttatca	60
gaagtccact gaacttctga ttgcgaaact tcccttccag cgtctgggtgc gagaaattgc	120
tcaggacttt aaaacagatc tgcgcttcca gagcgcagct atcggtgctt tgcaggagc	180
aagtgaggac ctgcggccgacc accacgct	208

<210> 232
 <211> 332
 <212> DNA
 <213> Homo sapien

<400> 232
 tcgagcggcc gccccggcag gtccacatcg gcagggtcgg agccctggcc gccataactcg 60
 aactggaatc catcggtcat gctctcgccg aaccagacat gcctcttgc cttggggttc 120
 ttgctgtatgt accagttctt ctggccaca ctgggctgag tgggtacac gcagggtctca 180
 ccagtctcca tgttgcagaa gactttgatg gcatccaggt tgcagccttg gttgggtca 240
 atccagtaact ctccacttt ccagtcagag tggcacatct tgaggtcacg gcaggtgcgg 300
 gcggggttct tgacctcgcc cgccgaccacg ct 332

<210> 233
 <211> 415
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(415)
 <223> n = A,T,C or G

<400> 233
 gtgggnttga acccnnttta nctccgcttg gtaccgagct cggatccact agtaacggcc 60
 gccagtgtgc tggaaattcgg cttagcgtgg tcgcggccga ggtaagaac cccgcccga 120
 cctgcccgtga cctcaagatg tgccactctg acttggaaagag tggagagtac tggattgacc 180
 ccaaccaagg ctgcaacctg gatgccatca aagtcttctg caacatggag actggtgaga 240
 cctgctgtga ccccaacttag cccagtgtgg cccagaagaa ctgtacatc agcaagaacc 300
 ccaaggacaa gaggcatgtc tggttcggcg agagcatgac cgatggattc cagttcgagt 360
 atggcggcca gggctccgac cctggcgatg tggacctgcc cggcggccg ctcga 415

<210> 234
 <211> 776
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(776)
 <223> n = A,T,C or G

<400> 234
 agcgtggtcg cggccgaggt ctggatgct cctgctgtca cagttagata ttacaggatc 60
 acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag 120
 tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct 180
 gtcactggcc gtggagacag ccccgcaagc agcaagccaa tttccattaa ttaccgaaca 240
 gaaaattgaca aaccatccca gatcaagtg accgatgttcc aggacaacag cattatgtc 300
 aagtggctgc cttcaagtgc ccctgttact ggttacagag taaccaccac tcccaaaaat 360
 ggaccaggac caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa 420
 ggcttgcagc ccacagtgga gtatgtggtt aagtgtctat gctcagaatc caagcggaga 480
 gaagtcaagcc tctgggttcag actgnaaatg accaacatttgc atgcctaaa ggactggcat 540
 tcactgatgn ggatgccat tccatcaaaa ttgnttgga aaacccacag gggcaagttt 600
 ncangtcnag gnggacctac tcgagccctg agatggaaat ccttgactnt tccttnncct 660
 gatggggaaa aaaaacctn aaaactgaa ggacctgccc gggcggccgt ncaaaaaccca 720

atccaccccc cttggggcg ttctatgggn cccactcgga ccaaacttgg ggtaan 776

<210> 235
<211> 805
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(805)
<223> n = A,T,C or G

<400> 235

tcgagcggcc	gcccgccag	gtccttgcag	ctctgcagt	tcttcttac	catcagg	tg	60
agggaaatgc	tcatggattc	catcctcagg	gctcgagtag	gtcacccctgt	acctggaaac		120
ttggccctgt	gggcttccc	aagcaatttt	gatggaatcg	gcatccacat	cagtgaatgc		180
cagtcctta	ggcgatcaa	tgttgttac	tgcagtctga	accagaggct	gactcttcc		240
gcttggattc	ttagcataga	cactaaccac	atactccact	gtgggctgca	agccttcaat		300
agtcatttct	gtttgatctg	gacctgcagt	tttagtttt	gttggcctgt	gtccat	tttt	360
gggaggtgt	gttactctgt	aaccagtaac	aggggaactt	gaaggcagcc	acttgacact		420
aatgctgtt	tcctgaacat	cggtacttg	catctggat	gtttgtcaa	tttctttcg		480
gtaattaatg	gaaattggct	tgctgcttgc	ggggcttgc	tccacggcca	gtgacagcat		540
acacagtgt	ggtataatca	actccagg	ttagccctg	atgttagctg	aaactttgt		600
ccaggcaca	gtgaactcct	gacagggcta	tttcctnctg	ttctccgtaa	gtgatcctgt		660
aatatctcac	tgggacac	ggangcattc	caaaacttgc	ggcngngaccc	cctaagccga		720
atntgcaat	atncatcaca	ctggggcg	ctcgancatt	cattaaaagg	cccaatcncc		780
cctataagg	gtntantaca	attn	g				805

<210> 236
<211> 262
<212> DNA
<213> Homo sapien

<400> 236

tcgagcggcc	gcccgccag	gtcactttt	gtttttggc	atgttcgg	ttt	ggtcaaagat	60
aaaaactaag	tttgagagat	aatgc	aaag	aaaaaaata	tttccaaag	tccatgtgaa	120
attgtctccc	atttttttgg	cttttgaggg	gtt	cagttt	gggttgc	tctgtttccg	180
gttgggggg	aaagttgg	gggtgggagg	gagccag	ttt	ggatggagg	gatttacag	240
gaagcagaca	ggccaaacgt	cg					262

<210> 237
<211> 372
<212> DNA
<213> Homo sapien

<400> 237

agcgtggc	cgcccgagg	cctcaccaga	gggccac	acaacatcat	agtggagg	ca	60
ctgaaagacc	agcagagg	taagttcg	gaagagg	ttaccgtgg	caactctgt	cc	120
aacgaagg	cttgc	tacggatgac	tcgtgtt	accctacac	agtttcc	at	180
tatgccc	tttgc	gagatgag	ggaacgaat	tctgaatcag	gctttaact	gttgtcc	240
tgcttagg	tttgc	tcatttca	tgtgattc	ctagatgg	ccatgaca	at	300
ggtgt	tttgc	acaagat	agagaagt	gaccgtc	gagaaaat	gg	360
gcggccg	tttgc	ga					372

<210> 238

<211> 372
 <212> DNA
 <213> Homo sapien

<400> 238
 tcgagcggcc gcccgggcag gtccatttc tccctgacgg tcccacttct ctccaatctt 60
 gtagttcaca cattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc 120
 aaagctaag cactggcaca acagttaaa gcctgattca gacattcggt cccactcata 180
 tccaacggca taatggaaa ctgtgttaggg gtcaaagcac gagtcatccg taggttggtt 240
 caaggcctcg ttgacagagt tgcccacggt aacaacctct tcccgAACCT tatgcctctg 300
 ctggctttc agtgcctcca ctatgatgtt gtaggtggca cctctggta ggacctcgcc 360
 cgcgaccacg ct 372

<210> 239
 <211> 720
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(720)
 <223> n = A,T,C or G

<400> 239
 tcgagcggcc gcccgggcag gtccaccata agtcctgata caaccacgga tgagctgtca 60
 ggagcaagggt tgatttctt cattggtccg gtcttctcct tgggggtcac ccgcactcga 120
 tatccagtga gctgaacatt ggggtgggtc cactgggcgc tcaggcttgtt ggggtgtgacc 180
 tgagtgaact tcaggtcagt tgggtgcagga atagtggtt ctgcagtcgt aaccagaggc 240
 tgactctctc cgcttggatt ctgagcatag acactaacca cataactccac tgtggctgc 300
 aagccttcaa tagtcatttc tggttgcattt ggacctgcag ttttagttt tggtggcct 360
 ggtccatttt tgggagtggt ggttactctg taaccagtaa caggggaact tgaaggcagc 420
 cacttgacac taatgctgtt gtcctgaaca tcggtcactt gcattctggta tggttgnca 480
 atttctgttc gtataattat ggaatttggc ttgctgcattt cggggctgtc tccacggcca 540
 gtgacagcat acacagngat ggnatnatca actccaagtt taaggccctg atggtaactt 600
 taaaacttgct cccagccagn gaacttccgg acagggtatt tcttctgggtt ttccgaaagn 660
 gancctggaa tnntctcctt ggancagaag gancntccaa aacttgggcc ggaaccctt 720

<210> 240
 <211> 691
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(691)
 <223> n = A,T,C or G

<400> 240
 agcgtggtcg cggccgaggt cctgtcagag tggcacttgtt agaagttcca ggaaccctga 60
 actgttaagggt ttcttcataca gtgcacacag gatgacatga aatgtatgtac tcagaagtgt 120
 cctggaatgg gccccatgag atgggtgtct gagagagagc ttcttgcctt acattcgccg 180
 ggtatggtct tggcctatgc cttatgggg tggccgttgtt gggcggtgtg gtccgcctaa 240
 aaccatgttc ctcaaagatc atttgttgc caacactggg ttgtgaccca gaagtgccag 300
 gaagctgaat accatttcca gtgtcatacc caggggtgggt gacgaaaggg gtctttgaa 360
 ctgtgaaagg aacatccaag atctctggtc catgaagatt ggggtgtgaa agggttacca 420

gttggggaag ctcgtctgtc ttttccttc caatcagggg ctcgtcttc tgattattct	480
tcaggccaat gacataaaatt gtatattcggtt caggccagta atagtagcct	540
cgttgacac caggcggggc ccanggacca ctctctggg angagaccca gcttctcata	600
cgttgatgtg taaccggta atcctgcacg tggcggctgn catgatacca ncaaggaatt	660
gggtgngng gacctgcccgcg gcggccctcn a	691

<210> 241
<211> 808
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(808)
<223> n = A,T,C or G

<400> 241

agcgtggtcg cggccgaggt ctggatgct cctgtgtca cagttagata ttacaggatc	60
acttacggag aaacaggagg aaatagccct gtccaggagg tcactgtgcc tggagcaag	120
tctacagcta ccatcagccg ccttaaacct ggagttgatt ataccatcac tgtgtatgct	180
gtcactggcc gtggagacag cccgcgaagc agcaagccaa ttccattaa ttaccgaaca	240
gaaaattgaca aaccatccca gatcaagtgc accgatgttcc accgacaacag cattatgtc	300
aagtggctgc cttcaagttc ccctgttact ggttacagag taaccaccac tccaaaaaat	360
ggaccaggac caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa	420
ggcttgcagc ccacagtgca gtatgtggtt agtgtctatg ctcagaatcc aagcggagag	480
agtcagcctc tggttcagac tgcagttaacc actattcctg caccaactga cctgaagttc	540
actcaaggta caccacaaag cctgagccgc cagtggacac caccaatgt tcactcaactg	600
gatatcgagt gccccgtgacc cccaggaga agacccggac ccatgaaaga aatcaacatt	660
gctcctgaca gctcatccgn ggggttatca ggacttatgg ggactgtccc cggcngccg	720
ntcgaaancg aattntgaaa tttccttcnc actgggnngc gnttcgagct tncttnana	780
nngcccaatt cnccntagn gggtcgtt	808

<210> 242
<211> 26
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(26)
<223> n = A,T,C or G

<400> 242

agcgtggtcg cggccgaggt cnagga	26
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<210> 243
<211> 697
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(697)
<223> n = A,T,C or G

<400> 243

tcgagcggcc	ccccgggcag	gtccaccaca	cccaattcct	tgctggtata	atggcagccg	60
ccacgtgcca	ggattacccg	ctacatcatc	aagtatgaga	agcctgggtc	tctcccaga	120
gaagtggtcc	ctcgcccccg	ccctgggtgc	acagaggcta	ctattactgg	cctggAACCG	180
ggaaccgaat	atacaattta	tgtcattgcc	ctgaagaata	atcagaagag	cgagccctg	240
attggaaagga	aaaagacaga	cgagctccc	caactggtaa	cccttccaca	ccccaaatctt	300
catggaccag	agatcttga	tgttccctcc	acagttcaaa	agaccccttt	cgtcacccac	360
cctgggtatg	acactggaaa	tggattcag	cttcctggca	cttctggta	gcaaccagt	420
gttgggcaac	aatatgatctt	tgaggaacat	ggtttttaggc	ggaccacacc	gcccacaacg	480
ggcaccccca	taaggnatag	gccaagacca	taccccgccg	aatgttaggac	aagaagctct	540
ntctcaacaa	ccatctcatg	ggcccccattc	caggacactt	ctgagtagat	catttcatgt	600
catcctggtg	gcaacttgc	gaanaaccct	tacagttcag	gttccctgga	acttctacca	660
ngccacttc	tgacagganc	ttggcgnnga	ccaccct			697

<210> 244

<211> 373

<212> DNA

<213> Homo sapien

<400> 244

agcgtggtcg	cggccgaggt	ccattttctc	cctgacggtc	ccacttctct	ccaatcttgt	60
agttcacacc	attgtcatgg	caccatctag	atgaatcaca	tctgaaaatga	ccacttccaa	120
agcctaagca	ctggcacaac	agttaaagc	ctgattcaga	catcggtcc	cactcatctc	180
caacgcata	atgggaaact	gtgtaggggt	caaagcacga	gtcatccgta	gttgggtca	240
agccttcgtt	gacagagttg	cccacggtaa	caaccttcc	ccgaacctta	tgcctctgt	300
gttcttcag	tgcctccact	atgatgttgt	aggtggcacc	tctggtgagg	acctgcccgg	360
gcggcccgct	cga					373

<210> 245

<211> 307

<212> DNA

<213> Homo sapien

<400> 245

agcgtggtcg	cggccgaggt	gtgccccaga	ccaggaattc	ggcttcgacg	ttggccctgt	60
ctgcttcctg	taaactccct	ccatccaaac	ctggctccct	cccacccaaac	caacttccc	120
cccaaccccg	aaacagacaa	gcaacccaaa	ctgaacccccc	tcaaaagcca	aaaaaatggg	180
agacaatttc	acatggactt	tggaaaatat	tttttcctt	tgcattcata	tctcaaactt	240
agtttttatac	tttgaccaac	cgaacatgac	caaaaaccaa	aagtgacctg	ccggccggc	300
cgctcga						307

<210> 246

<211> 372

<212> DNA

<213> Homo sapien

<400> 246

tcgagcggcc	ccccgggcag	gtccctcacca	gaggtgccac	ctacaacatc	atagtggagg	60
cactgaaaga	ccagcagagg	cataaggttc	gggaagaggt	tgttaccgtg	ggcaactctg	120
tcaacgaagg	cttgaaccaa	cctacggatg	actcggtctt	tgacccctac	acagttccc	180
attatgccgt	tggagatgag	tggaaacgaa	tgtctgaatc	aggctttaaa	ctgttggtcc	240
agtgcctagg	cttggaaagt	ggtcatttca	gatgtgatcc	atctagatgg	tgccatgaca	300
atgggtgtgaa	ctacaagatt	ggagagaagt	gggaccgtca	ggagaaaaat	ggacctcgcc	360
cgccaccac	ct					372

<210> 247
 <211> 348
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(348)
 <223> n = A,T,C or G

<400> 247
 tcgagcggcc gcccgggcag gtaccgggt ggtcagcgag gagccattca cactgaactt 60
 caccatcaac aacctgcggg atgaggagaa catgcagcac cctggctcca ggaagttcaa 120
 caccacggag agggcttc caggtccctg ttcaagagca ccagtgttgg 180
 ccctctgtac tctggctgca gactgacttt gctcagacact gagaaacatg gggcagccac 240
 tggagtggac gccatctgca ccctccgcct tgatcccact ggtnctggac tggacanana 300
 gcggctatac ttgggagctg anccnaacct ttggcggnga cnccnctt 348

<210> 248
 <211> 304
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(304)
 <223> n = A,T,C or G

<400> 248
 gaggactggc tcagctccca gtatagccgc tctctgtcca gtccaggacc agtgggatca 60
 aggccggaggg tgcagatggc gtccactcca gtggctgccc catgtttctc aagtctgagc 120
 aaagnncatgc tgcagccaga gtacagaggg ccaacactgg tgctcttcaa cagggacctg 180
 agcaggccct gaaggaccct ctccgtggtg ttgaacttcc tggagccagg gtgctgcatg 240
 ttctcctcat accgcaggtt gttgatggtg aagttcagtg tgaatggctc ctcgctgacc 300
 accc 304

<210> 249
 <211> 400
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(400)
 <223> n = A,T,C or G

<400> 249
 agcgtggtcg cggccgaggt ccaccacacc caattccctt ctggtatcat ggcagccgcc 60
 acgtgccagg attaccgggt acatcatcaa gtatgagaag cctgggtctc ctcggcagaga 120
 agtggccct cggccccgcc ctggtgtcac agaggctact attactggcc tggaaaccggg 180
 aaccgaatat acaattttatg tcattccctt gaagaataat cagaagagcg agccctgtat 240
 tggaaaggaaa aagacagacg agcttccca actggtaacc cttccacacc ccaatcttca 300
 tggaccanan ancttggatn gtccttcac nggttnaaaa aaccctttc gcccccccac 360
 cttggggatt aaccttggga aangggatt tnaccnttcc 400

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<210> 250
<211> 400
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(400)
<223> n = A,T,C or G

<400> 250
tcgagcggcc gcccgggcag gtcctgtca agtggcactg gtagaagttc caggaaccct      60
gaactgtaa ggttcttcat cagtgccaa acaggatgacat gaaatgtatgt actcagaagt      120
gtcctggaat ggggccccatg agatgggtgt ctgagagaga gcttcttgc ctacattcg      180
cgggtatggc cttggcctat gccttatggg ggtggccgtt gtggccgtg tggccgcct      240
aaaaccatgt tcctcaaaga tcatttgtt cccaacactg ggttgctgac cagaagtgcc      300
aggaagctga ataccatttc cagtgtcata cccagggngg gtgaccaaag ggggtcnntt      360
ngacctggng aaaggaacca tccaaaanc ctgnccatg                                400

<210> 251
<211> 514
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(514)
<223> n = A,T,C or G

<400> 251
agcgtggncg cgcccggagg ctgaggatgt aaactcttcc caggggaagg ctgaagtgc      60
gaccatggtg ctactgggtc cttctgagtc agatatgtga ctgatngaa ctgaagtagg      120
tactgttagat ggtgaagtctt ggggtccctt aaatgctgca tctccagagc cttccatcat      180
taccgtttct tcttttgcta tgggatgaga cactgttgag tattctctaa agtcaccact      240
gaaatcttcc tccaaaggaa aacctgtgga aaagccccctt atttctgccc cataatttgg      300
ttctccataat cnctctgaaa tcactatttc cctggaaangt ttggaaaaaa nngggcnacc      360
tgncantgga aantggatan aaagatccca ccattttacc caacnagcag aaagtggaa      420
nggtaccgaa aagctccaag taanaaaaag gagggaaagta aaggtaagt gggcaccagt      480
ttcaaacaaa actttccca aactatanaa cccca                                514

<210> 252
<211> 501
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(501)
<223> n = A,T,C or G

<400> 252
aagcggccgc ccgggcaggn ncagnagtgc cttcggact gggntcaccc ccaggtctgc      60
ggcagtgtc acagcgccaa ccccgtggc ctccaaagca tgtgcaggag caaatggcac      120
cgagatattc cttctgcccac tgttctccta cgtggatgt ctcccattca tcgtAACACG      180
ttgcctcatg agggtcacac ttgaattctc cttttccgtt cccaaagacat gtgcagctca      240

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tttggctggc tctatagttt gggaaaagtt tggtaact gtgccactga cctttacttc	300
ctccttctct actggagctt tccgtacctt ccacttctgc tgntggnaaa aaggnggaa	360
cnccttatca atttcattgg acagtanccc nctttctncc caaaacatnc aaggaaaat	420
attgattncn agagcgatt aaggaacaac ccnaattatg gggccagaa ataaaggggg	480
ctttccaca ggtntttcc t	501
<210> 253	
<211> 226	
<212> DNA	
<213> Homo sapien	
<400> 253	
tcgagcggcc gccggggcag gtctgcaggc tattgttaat gttctgagca catatgagat	60
aacctggggc aagctatgtt gttcgatacg ttaggtgtat taaatgcact ttgactgcc	120
atctcatgtt atgacagccct tctcaactgac acgagagatc ttccctcaactg tgccagtg	180
caggagaaag agcatgctgc gactggaccc cggccgcac cacgct	226
<210> 254	
<211> 226	
<212> DNA	
<213> Homo sapien	
<400> 254	
agcgtggctg cggccgaggc ccagtcgcag catgctctt ctcctgccc ctggcacagt	60
gaggaagatc tctgctgtca gtgagaaggc tgtcatccac tgagatggca gtcaaaaatg	120
cattaataac acctaacgta tcgaacatca tagcttgcc cagtttatct catatgtgct	180
cagaacactt acaatagccct gcagacgtc cggccgcggc gctcga	226
<210> 255	
<211> 427	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(427)	
<223> n = A,T,C or G	
<400> 255	
cgagcggccg cccggggcagg tccagactcc aatccagaga accaccaagc cagatgtcag	60
aagctacacc atcacaggtt tacaaccagg cactgactac aagatctacc tgtacacctt	120
gaatgacaat gctcggagct cccctgtgg catcgacgccc tccactgcca ttgatgcacc	180
atccaaacctg cgtttcctgg ccaccacacc caattccttg ctggtatcat ggcagccgccc	240
acgtgcagg attaccggct acatcatcaa gtatgagaag cctgggtctc ctcccagaga	300
agtggccctt cgccccggcc ctggtgncac agaagctact attactggcc tggaaaccggg	360
aaccgaatat acaatttatg tcattggccct gaagaataat canaagagcg agccctgat	420
tggaaagg	427
<210> 256	
<211> 535	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	

<222> (1)...(535)

<223> n = A,T,C or G

<400> 256

agcgtggtcg cggccgagg	cctgtcagag tggcacttgt	agaagttcca ggaacctga	60
actgtaaagg ttcttcatca	gtgccaacag gatgacatga	aatgatgtac tcagaagtgt	120
cctggaatgg ggcccattgag	atgggtgtct gagagagagc	ttcttgcct gtctttcc	180
ttccaaatcg gggctcgctc	ttctgattat tcttcaggc	aatgacataa attgtatatt	240
cggttccccg ttccaggcca	gtaatagtag cctctgtgac	accaggcgg gggcaggga	300
ccacttctct gggaggagac	ccaggcttct cataacttgat	gatgtanccg gtaatcctgg	360
caccgtggcg gctgccatga	taccagcaag gaattgggtg	tggggccaa gaaacgcagg	420
ttggatggtg catcaatggc	agtggaggcg tcgatnacca	cagggagct ccgancattg	480
tcattcaagg tggacaggta	gaatcttgc	atcaggtgcc tggttgtaa acctg	535

<210> 257

<211> 544

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(544)

<223> n = A,T,C or G

<400> 257

tcgagcggcc gccccggcag	gtttcggtac cggtaccc	agggtggacac caccctcaag	60
agcctgagcc agcagatcg	gaacatccgg agcccagg	gcagccgcaa gaaccccgcc	120
cgcacccgtcc	gtgacccaa gatgtgccac	tctgactgga agagtggaga	180
gaccggcaacc aaggctgcaa	cctggatgcc atcaaagtct	tctgcaacat ggagactggt	240
gagacccatcg	tgtacccac tcagccca	gtggccca agaactggta	300
aaccccaagg acaagaagca	tgtctggttc ggcgaaagca	tgaccgatgg attccagttc	360
gagttatggcg	gccaggcgtc cgaccctg	gatgtggacc tcggccgcga	420
cccgaaattcc	agcacactgg cggccgttac	tagtgggatc cgagcttcgg	480
ggcgtaatca	tgggnatag ctgtttcctg	gtattccgct tcacaatttc	540
ccac			544

<210> 258

<211> 418

<212> DNA

<213> Homo sapien

<400> 258

agcgtggtcg cggccgagg	ccacatccgc agggtcgag	ccctggccgc cataactcgaa	60
ctggaaatcca tcgggtcatgc	tctcgccaa ccagacatgc	ctcttgcct tgggttctt	120
gctgatgtac cagttcttct	ggccacact gggctgagtg	gggtacacgc aggtctcacc	180
agtctccatg ttgcagaaga	ctttgatggc atccagg	cagccttgg tgggtcaat	240
ccagttactct ccacttcc	agtcaagatg gcacatctt	aggtcacggc aggtgcgggc	300
ggggttctt	cggtgcct ctgggtccg	gatgttctcg atctgctgc	360
gaagggttgt	gtccacctcg aggtcacgg	tcaagcttca gcccggcgg	418

<210> 259

<211> 377

<212> DNA

<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(377)
<223> n = A,T,C or G

<400> 259
agcgtggtcg cggccgaggt caagaacccc gcccgcacct gccgtgacct caagatgtgc      60
cactctgact ggaagagtgg agagtactgg attgacccca accaaggctg caacctggat     120
gccatcaaag tcttctgcaa catggagact ggtgagacct gcgtgtaccc cactcagccc    180
agtgtggccc agaagaactg gtacatcagc aagaacccc aggacaagag gcatgtctgg    240
ttcggcgaga gcatgaccga tggatccag ttcgagtatg gccccaggg ctccgaccct    300
gccgatgtgg acctgcccgn gccggncgc tcgaaaagcc cnaattcca gncacacttg    360
gccggccgtt actactg                                         377

<210> 260
<211> 332
<212> DNA
<213> Homo sapien

<400> 260
tcgagcggcc gcccgggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg      60
aactgaaatc catcggtcat gctctcgccg aaccagacat gcctttgtc cttggggttc     120
ttgctgatgt accagttctt ctggggcaca ctgggcttag tggggtagac gcaggtctca    180
ccagtctcca ttttcagaa gactttgtatg gcatccaggt tgcagccttg gttggggtca    240
atccagtaat ctccactctt ccagtcagag tggcacatct tgaggtcacg gcaggtgcgg   300
gcggggttct tgacctcgcc cgccgaccacg ct                                         332

<210> 261
<211> 94
<212> DNA
<213> Homo sapien

<400> 261
cgagcggccg cccgggcagg tccccccct ttttttttt ttttttttt ttttttttt      60
tttttttttt ttttttttt ttttttttt tttt                                         94

<210> 262
<211> 650
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(650)
<223> n = A,T,C or G

<400> 262
agcgtggtcg cggccgaggt ctggcattcc ttgcacttct ctccagccga gcttccaga      60
acatcacata tcactgcaaa aatgcattt catacatgga tcaggccagt ggaaatgtaa     120
agaaggccct gaagctgatg gggtaaatg aaggtaatt caaggctgaa ggaaatagca    180
aattcaccta cacagttctg gaggatggtt gcacgaaaca cactggggaa tggagcaaaa  240
cagtcttga atatcgaaaa cgcaaggctg tgagactacc tatttagat attgcaccct  300
atgacattgg tggcctgat caagaatttgg tggggacgt tggccctgtt tgcttttat 360
aaaccaact ctatcgaaaa tcccaacaaa aaaaatttaa ctccatatgt gntcctcttg 420
ttctaatctt ggcaaccagt gcaagtgacc gacaaaattt cagttatttta ttccaaaat 480

```

gtttggaaac agtataattt gacaaaagaaaa aaaggatact tctctttttt tggctggtcc	540
accaaataca attcaaaagg cttttggtt ttatTTTTT anccaattcc aatttcaaaa	600
tgtctcaatg gngcttataa taaaataaac tttcaccott nttttntgat	650
<210> 263	
<211> 573	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(573)	
<223> n = A,T,C or G	
<400> 263	
agcgtggctcg cggccgaggt ctgggatgct cctgctgtca cagttagata ttacaggatc	60
acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag	120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tggatgtatgct	180
gtcactggcc gtggagacag ccccgcaagc agcaagccaa tttccattaa ttaccgaaca	240
gaaatttgaca aaccatccca gatgaagtg accgatgttc aggacaacag cattaggtgc	300
aagtggctgc cttcaagttc ccctgttact ggtagcagaa gtaaccacca ctccccaaaaa	360
tggaccagga ccaacaaaaa ctaaaactgc aggtccagat caaacagaaa atggactatt	420
gaaggcttgc agcccacagt ggaagttatgt ggtaggnngt ctatgctcag aatcccaagc	480
cggagaaagt cagccttctg gtttagactg cagtaaccaa cattgatcgc cctaaaggac	540
tggncattca cttggatggt ggatgtccaa ttc	573
<210> 264	
<211> 550	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(550)	
<223> n = A,T,C or G	
<400> 264	
tcgagcggcc gccccggcag gtccttgcag ctctgcagng tcttcttcac catcagggtgc	60
agggaatagc tcatggattt catcctcagg gtcgagtag gtcaccctgt acctggaaac	120
ttggccctgt gggctttccc aagcaatttt gatggaatcg acatccacat cagngaatgc	180
cagtccttta gggcgtatcaa tgggtttac tgccgtctga accagaggct gactctctcc	240
gcttggattt ttagcataga cactaaccac atactccact gtgggctgca agccttcaat	300
agtcatattt gttttagtctg gacctgtcgt tttagtttt tgggtggctt gncccatttt	360
tggaaatgtgg ggggttactc tgtaaccagt aacaggggaa cttgaaggca gccacttgac	420
actaatgtctg ttgtcctgaa catcggtcac ttgcattctgg ggatggtttt gacaatttct	480
ggttcggcaa attaatggaa attggcttgc tgcttggcgg ggctgnctcc acggggccagt	540
gacagcatac	550
<210> 265	
<211> 596	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	

<222> (1)...(596)
 <223> n = A,T,C or G

<400> 265
 tcgagcggcc gcccgggcag gtccttgcag ctctgcagtgtcttccac catcagggtgc 60
 aggaatagc tcatggattc catcctcagg gtcgagtag gtcaccctgt acctggaaac 120
 ttggccctgt gggcttccc aagcaatttt gatggaatcg acatccacat cagtgaatgc 180
 cagtccttta gggcgtcaa tggtgttac tgcaagtctga accagaggct gactctctcc 240
 gcttgattc tgagcataga cactaaccac atactccact gtgggctgca agccttcaat 300
 agtcatttct gttgatctg gacctgcagt tttaagttt tggtggncct gnnccatttt 360
 tgggaaagggtgggttactc ttgtaaccag taacagggga acttgaagca gccacttgac 420
 actaatgctg gtggcctgaa catcggtcac ttgcattctgg gatgtttgg tcaatttctg 480
 ttcggttaatt aatgggaaat tggcttactg gcttgcgggg gctgtctcca cggncaagtga 540
 caagcataca caggnatgg gtataatcaa ctccagggtt aaggcnctg atggta 596

<210> 266
 <211> 506
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(506)
 <223> n = A,T,C or G

<400> 266
 agcgtggtcg cggccgaggt ctgggatgct cctgctgtca cagttagata ttacaggatc 60
 acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag 120
 tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct 180
 gtcactggcc gtggagacag ccccgcaagc agtaagccaa tttccattaa ttaccgaaca 240
 gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaacag cattagtgtc 300
 aagtggctgc cttcaagttc ccctgttact ggttacagag taaccaccac tcccaaaaaat 360
 gggaccagga ccaacaaaaaa actaaaactg canggtccag atcaaacaga aatgactatt 420
 gaaggcttgc agccccacagt ggagtatgtg ggtagtgtc tatgctcaga atnccaagcg 480
 gagagagtcg ccctctgggt cagact 506

<210> 267
 <211> 548
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(548)
 <223> n = A,T,C or G

<400> 267
 tcgagcggcc gcccgggcag gtcagcgctc tcaggacgtc accaccatgg cctgggctct 60
 gtcctcttc accctcctca ctcaaggcac agggtcctgg gcccagtctg ccctgactca 120
 gcctccctcc gcttcgggt ctccctggaca gtcagtccacc atctcctgca ctggaaccag 180
 cagtgacgtt ggtgttatg aatttgcctc ctggtagccaa caacaccac gcaaggcccc 240
 caaactcatg atttctgagg tcactaagcg gcccctcagggt gtcctgtatc gcttctctgg 300
 ctccaagtct ggcaacacgg cctccctgac cgtctctggg ctccangctg aggatgangc 360
 tgattattac tggaaagctca tatgcaggca acaacaattt ggtgttcggc ggaagggacc 420
 aagctgaccg tnctaagggtc aagcccaagg cttggcccccc tcggtcactc tggcccacc 480

ctcctctgaa gaagctttca agccaacaan gncacactgg gtgtgtctca taagtggact	540
ttctaccc	548
<210> 268	
<211> 584	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(584)	
<223> n = A,T,C or G	
<400> 268	
agcgtggtcg cggccgagggt ctgttagcttc tggggactt ccactgctca gggtcgaggc	60
tcaggtagct gctggcccg tacttgttgc tgcttgntt ggagggtgtg gtgggtctcca	120
ctcccccctt gacggggctg ctatctgcct tccaggcac tgcgtacggct cccgggtaga	180
agtcaacttat gagacacacc agtgtggcct tggggcttgc aagctcctca gaggagggtg	240
ggaacagagt gaccgagggg gcaggcttgg gctgacccatg gacggtcagc ttgggtccctc	300
cggccgaacac ccaattgttg ttgcctgcat atgagctgca gtaataatca gcctcatcct	360
cagcctggag cccagagacn gtcaaggag gcccgtgtt gccaagactt ggaagccaga	420
naagcgatca gggacccttg agggccgtt tacngaccc aaaaaatcat gaattttgggg	480
ggccttgcc tgggnngttgg ttggtnacca gnaaaacaaa atttcataaaa gcaccaacgt	540
cactgctggt ttccagtgcngaanatggt gaactgaant gtcc	584
<210> 269	
<211> 368	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(368)	
<223> n = A,T,C or G	
<400> 269	
agcgtggtcg cggccgagggt ccagcatcag gagccccgcc ttggccggctc tggcatcgc	60
ctttctttt gtggcctgaa acgatgtcat caattcgcag tagcagaact gccgtctcca	120
ctgctgtctt ataagtctgc agcttcacag ccaatggctc ccatatgccc agttccttca	180
tgtccaccaa agtaccgcgc tcaccatttac caccggcagg tgcacagttc tcctgggtgt	240
gcttggcccg aaggggaggtt agtanacgga tgggtctggt cccacagttc tggatcagg	300
tacgaggaat gacctctagg gcctggcna caagccctgt atggacctgc cggggcgggc	360
ccgctcga	368
<210> 270	
<211> 368	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(368)	
<223> n = A,T,C or G	
<400> 270	

tcgagcggcc gcccgggcag gtccatacag ggctgtgcc caggccctag aggnattcc	60
ttgtaccctg atccagaact gtgggaccag caccatccgt ctacttacct cccttcggc	120
caagcacacc caggagaact gtgagacctg ggggtaaat ggnagacgg gtacttttgt	180
ggacatgaag gaactggca tatggagcc attggctng aagctgcana cttataagac	240
agcagtggag acggcagttc tgctactgcg aattgatgac atcgtttcag gccacaaaaa	300
gaaaaggcgat gaccanagcc ggcaaggcgg ggcttcctga tgctggaccc cgccccccga	360
ccacgctt	368
<210> 271	
<211> 424	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(424)	
<223> n = A,T,C or G	
<400> 271	
agcgtggctcg cggccgagg ccactagagg tctgtgtgcc attgcccagg cagagtctct	60
gcgttacaaa ctccttaggag ggcttgctgt gcggaggccc tgctatggtg tgctcggtt	120
catcatggag agtggggcca aaggctgcga ggttgggtg tctggaaac tccgaggaca	180
gagggtctaaa tccatgaagt ttgtggatgg cctgatgatc cacagcggag accctgttaa	240
ctactacgtt gacactgctg tgcccacgt gttgctcana cagggtgtgc tgggcatcaa	300
gttgaagatc atgctgccct gggaccanc tggcaaaaat ggcccttaaa aacccttgc	360
cntgaccacg tgaaccattt gtgngaaccc caagatgaan atacttgc accacccccc	420
attc	424
<210> 272	
<211> 541	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(541)	
<223> n = A,T,C or G	
<400> 272	
tcgagcggcc gcccgggcag gtctgccaag gagaccctgt tatgctgtgg ggactggctg	60
gggcattggca ggcggctctg gcttcccacc cttctgttct gagatgggg tggtggcag	120
tatctcatct ttgggttcca caatgctcac gtggtcaggc aggggcttct tagggccaat	180
cttaccagtt gggtcccagg gcagcatgat cttcacctt atgcccagca caccctgtct	240
gagcaacacg tggcgcacag cagtgtcaac gttagtagtta acagggtctc cgctgtggat	300
catcaggcca tcacacaaact tcatggattt agccctctgt cctcgagtt tcccaaaaca	360
ccacaaccc gocagccttt gggcccccact tcttcatgaa taaaaccgca gcacaccatt	420
ancaaggccc ttccgcacag gnaagccctt cctaaggagt tttgtaaacg caaaaaactc	480
ttgcctgggg caaatggca cacagacctn tantnggacc ttggncgcg aaccacccgt	540
t	541
<210> 273	
<211> 579	
<212> DNA	
<213> Homo sapien	

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<220>
<221> misc_feature
<222> (1)...(579)
<223> n = A,T,C or G

<400> 273
agcgtggtcg cggccgaggt ctggccctcc tggcaaggct ggtgaagatg gtcaccctgg      60
aaaacccgga cgacctggt agagaggagt tggtggacca cagggtgctc gtggttccc     120
tggaaactcct ggacttcctg gcttcaaagg cattaggga cacaatggtc tggatggatt     180
gaagggacag cccggtgctc ctggtgtgaa gggtaacct gngccctg gtgaaaatgg     240
aactccaggt caaacaggag cccngggct tcctggngag agaggacgtg ttggtgcccc    300
tggcccanac ctgcccgggc ggccgctcna aaagccgaaa tccagnacac tggcggccgn    360
tactantgga atccgaactt cgttacaaa gcttggccgt aatcatggcc atagcttgtt    420
ccctgggng gaaattggta ttccgctncc aattccacac aacataccga acccgaaag     480
cattaaagtg taaaagccct gggggggcct aaatgangtg agctaactc ncatttaatt    540
ggcggtgcgc ttcaactgccc cgctttcca gtccgggna                           579

<210> 274
<211> 330
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(330)
<223> n = A,T,C or G

<400> 274
tcgagcggcc gcccgggca gtcctggcca ggggcaccaa cacgtcctct ctcaccagga      60
agcccacggg ctcctgttg acctggagtt ccattttcac caggggcacc aggttccaccc    120
ttcacaccag gagcaccggg ctgtcccttc aatccatcca gaccattgtg ncccctaattg    180
cctttaaggc caggaagtcc aggagttcca gggaaaccac gagcaccctg tggtccaaca    240
actcctctct caccaggtcg tccgggttt ccagggtgac catcttccac agccttgcca    300
ggagggccag acctcgcccg cgaccacgct                                330

<210> 275
<211> 97
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(97)
<223> n = A,T,C or G

<400> 275
ancgtggtcg cggccgaggt cctcaccaga ggtgnacct acaacatcat agtggaggca      60
ctgaaaagacc ancagaggca taaggttcgg gaagagg                            97

<210> 276
<211> 610
<212> DNA
<213> Homo sapien

<220>

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<221> misc_feature
<222> (1)...(610)
<223> n = A,T,C or G

<400> 276

tcgagcggcc gccccggcag gtccatttgc tccctgacgg tcccacttct ctccaatctt	60
gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc	120
aaaggctaag cactggcaca acagttaaa gcctgattca gacattcggt cccactcata	180
tccaaacggca taatggaaa ctgtgttaggg gtcaaagcac gagtcatccg taggttggtt	240
caaggcttcg ttgacagagt tgtccacggt aacaacctct tccccaacacct tatgcctctg	300
ctggctttc agtgccctcca ctatgatgtt gtaggtggca cctctggta ggacactcngn	360
ccngaacaac gcttaagccc gnattctgca gaataatccc atcacacttg gcggccgctt	420
cgancatgca tcntaaaagg ggccccaatt tcccccttat aangnaancc gtattncca	480
atttcaactgg nccccggcgtt tttacaaacg ncggtaact gggaaaaac cctggcggtt	540
acccaacttt aatcgccntt ggcagcacaa tcccccttt tcgnccancn tgggcgtaaa	600
taaccgaaaa	610

<210> 277

<211> 38

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(38)

<223> n = A,T,C or G

<400> 277

ancgnggtcg cggccgangt ntttttctt ntttttt	38
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<210> 278

<211> 443

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(443)

<223> n = A,T,C or G

<400> 278

agcgtggctcg cggcgagggt ctgaggttac atgcgtggta gtggacgtga gccacgaaga	60
ccctgagggtc aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa	120
gcccgccggag gaggcgtaca acagcacgta cggggnggtc agcgtcctca ccgtcctgca	180
ccagaattgg ttgaatggca aggagtacaa gngcaagggtt tccaaacaaag ccntcccagc	240
ccccntcgaa aaaaccattt ccaaagccaa agggcagccc cgagaaccac aggtgtacac	300
cctgccccca tccccggagg aaaagancaa naaccnnggtt cagccttaac ttgttggtc	360
naangctttt tatcccaacg nactcccc ntggaantgg gaaaaaccaa tgggccaanc	420
cgaaaaaccaa ttacaanaac ccc	443

<210> 279

<211> 348

<212> DNA

<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(348)
<223> n = A,T,C or G

<400> 279
tcgagcggcc gccccggcaag gtgtcgagg ccagcacggg aggcgtggc ttgttagttgt      60
tctccggctg cccattgctc tcccactcca cggcgatgtc gctgggatag aagccttga      120
ccaggcagg t caggctgacc tggttcttgg tcatctcctc ccgggatggg ggcagggtga      180
acacctgggg ttctcggggc ttgcacctt gtttgaana tggtttctc gatggggct      240
ggaagggct t gttgnnaaac cttgcacttg actccttgcc attcacccag ncctggngca      300
ggacggngag gacnctnacc acacggaacc gggctggtgg actgctcc      348

<210> 280
<211> 149
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(149)
<223> n = A,T,C or G

<400> 280
agcgtggtcg cggacgangt cctgtcagag tggnaactggt agaagttcca ngaaccctga      60
actgtaaagg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagnng      120
cctggaatgg gccccatgan atggttgcc      149

<210> 281
<211> 404
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(404)
<223> n = A,T,C or G

<400> 281
tcgagcggcc gccccggcaag gtccaccaca cccaaattcct tgctggtatac atggcagccg      60
ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctgggtc tcctccaga      120
gaagtggtcc ctcggccccc ccctgggtgc acagaggcta ctattactgg cctggAACCG      180
ggaaccgaat atacaattt tgcattgcc ctgaagaata atcagaagag cgagccctg      240
attggaagga aaaagacaga cgagcttccc caactggtaa ccctccaca ccccaatctt      300
catggaccag agatcttggg tggcatttcc acagttcaaa agacccctt cggcaccgg      360
cctgggtatg aacctggaa aangnnant aanctttcct ggca      404

<210> 282
<211> 507
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(507)

```

<223> n = A,T,C or G

<400> 282

agcgtggtcg	cggccgagg	ctggatgct	cctgctgtca	cagttagata	ttacaggatc	60
acttacggag	aaacaggagg	aaatagccct	gtccaggagt	tcactgtgcc	tgggagaag	120
tctacagcta	ccatcagcgg	ccttaaacct	ggagttgatt	ataccatcac	tgtgtatgct	180
gtcactggcc	gtggagacag	ccccgcaga	agcaagccaa	tttccattaa	ttaccgaaca	240
gaaattgaca	aaccatccc	gatgcagtg	accgatgttc	aggacaacag	cattaggtc	300
aagtggctgc	cttcaaggt	ccctggact	gggttacaga	ntaaccacca	ctccccaaaa	360
tggaccagga	accacaaaaa	cttaaactgc	agggtccaga	tcaaaacaga	aatgactatt	420
gaangcttgc	agcccacagt	gggagtatgn	gggtagtgnc	tatgcttcag	aatccaagcg	480
aaaaaangtc	aagccttn	gttcaa				507

<210> 283

<211> 325

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(325)

<223> n = A,T,C or G

<400> 283

tcgagcggcc	gcccgccgca	gtccttgcag	ctctgcagtg	tcttcttcac	catcagggtgc	60
agggaaatgc	tcatggattc	catcctcagg	gtcgagtag	gtcaccctgt	acctggaaac	120
ttgcccctgt	gggcttccc	aagcaatttt	gatgaaatcg	acatccacat	cagtgaatgc	180
cagtcctta	gggcgatcaa	tgttggttac	tgcagnctga	accagaggct	gactctctcc	240
gcttggattc	ttagcataga	cactaaccac	atactccact	gtgggctgca	anccttcaat	300
aanncatttc	tgtttgatct	ggacc				325

<210> 284

<211> 331

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(331)

<223> n = A,T,C or G

<400> 284

tcgagcggcc	gcccgccgca	gtctggtgg	gtcctggcac	acgcacatgg	gggngtttgt	60
ctnatccagc	tggccagccc	ccattggcga	gtttgagaag	gtgtgcagca	atgacaacaa	120
naccttcgac	tcttcctgac	acttcttgc	cacaaagtgc	accctggagg	gcaccaagaa	180
gggccacaag	ctccacactgg	actacatcg	gccttgcaaa	tacatcccc	cttgccttgg	240
ctctgagctg	accgaattcc	cccttgcgca	tgcgggactg	gctcaagaac	cgtccttggca	300
cccttggatg	anagggatga	agacacnacc	c			331

<210> 285

<211> 509

<212> DNA

<213> Homo sapien

<220>

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<221> misc_feature
<222> (1)...(509)
<223> n = A,T,C or G

<400> 285
agcgtggtcg cggccgaggc ctgtcctaca gtcctcagga ctctactccc tcagcagcgt      60
ggtgaccgtg ccctccagca acttcggcac ccagacctac acctgcaacg tagatcacaa     120
gcccagcaac accaagggtgg acaagagagt tgagccccaa tcttgtgaca aaactcacac     180
atgcccacccg tgcccagcac ctgaactctt ggggggaccg tcagtcttcc tcttcccccg     240
catccccctt ccaaaccctgc ccggcggcc gctcgaaagc cgaattccag cacactggcg     300
gccggtaacta gtgganncna acttgggnanc caacctggng gaantaatgg gcataanctg     360
tttctgggg gaaattggta tccngttac aattcccnca caacatacga gccggaagca     420
taaaagngta aaagcctggg ggnggcctan tgaagtgaag ctaaactcac attaatnngc     480
gttgcgcctc actggcccgcc ttttccagc                                     509

<210> 286
<211> 336
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(336)
<223> n = A,T,C or G

<400> 286
tcgagcggcc gccccggcag gtttggaaagg gggatgcggg ggaagaggaa gactgacgg      60
ccccccagga gttcaggtgc tgggcacggg gggcatgtgt gagtttgc acaagatttgc     120
ggctcaactc tcttgtccac cttgggttttgc ctgggcttgc gatctacgtt gcagggttag     180
gtctgggnnc cgaagttgcg ggagggcacg gtcaccacgc tgctgaggga gtagagtcct     240
gaggactgtt ngacagaccc cggccngac cacgctaagc cgaattctgc agatatccat     300
cacactggcg gcccgtccga gcatgcattt tagagg                                336

<210> 287
<211> 30
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(30)
<223> n = A,T,C or G

<400> 287
agcgtggncg cggacganga caacaacccc                                         30

<210> 288
<211> 316
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(316)
<223> n = A,T,C or G

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<400> 288
tcgagcggcc gcccgggcag gnccacatcg gcagggtcgg agccctggcc gccataactcg 60
aactggaatc catcggtcat gctcttgcgg aaccagacat gcctcttgac cttggggttc 120
ttgctgatgn accagtctt ctggccaca ctgggctgag tgggtacac gcaggctca 180
ccagctcca tgttgcagaa gacttgatg gcatccaggt tgccgccttg gttgggtca 240
atccagtaact ctccacttt ccagtcagag tgccacatct tgaggtcacg gcagggtgcgg 300
gcggggttct tgacct 316

<210> 289
<211> 308
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(308)
<223> n = A,T,C or G

<400> 289
agcgtggtcg cggccgagggt ccagcctgga gataanggtg aagggtggtc cccggactt 60
ccaggtatacg ctggacactcg tggtagccct ggtgagagag gtgaaactgg ccctccagga 120
cctgctgggtt tccctgggtgc tcctggacag aatggtgaac ctgnggtaa aggagaaaaga 180
ggggctccgg ntganaaaagg tgaaggaggc ctcctgnat tggcaggggc cccangactt 240
agaggtggag ctggcccccc tggcccccga ggagggaaagg gtgctgctgg tcctcctggg 300
ccacctgg 308

<210> 290
<211> 324
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(324)
<223> n = A,T,C or G

<400> 290
tcgagcggcc gcccgggcag gtctggccca ggaggaccaa taggaccagt aggaccctt 60
ggccatctt tccctgggac accatcagca cctggaccgc ctggttcacc ctgtcaccc 120
tttggaccag gacttccaaag acctccttct tctccaggca ttcccttgca accaggagta 180
ccancagcac caggtggccc aggaggacca gcagcacct ttccctccttc gggaccagg 240
ggaccagctc cacctctaag tcctggggcc cctgccaatc caggagggcc tccttcaccc 300
ttctcaccctg gagccctct ttct 324

<210> 291
<211> 278
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(278)
<223> n = A,T,C or G

<400> 291
tcgagcggcc gcccgggcag gtccaccggg atattcgggg gtctggcagg aatgggaggc 60
atccagaacg agaaggagac catgcaaagc ctgaacgacc gcctggcctc ttacctggac 120
agagtgagga gcctggagac cgacaaccgg aggctggaga gcaaaatccg ggagcacctg 180
gagaagaagg gaccccaggc cagagactgg agccattact tcaagatcat cgaggacctg 240
agggctcana tcttcgcaaa tactgcngac aatgccccg 278

<210> 292
<211> 299
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(299)
<223> n = A,T,C or G

<400> 292
atgcgnngtc gcggccgang accanctctg gctcatactt gactctaaag ncntcaccag 60
nanttacggn cattgccaat ctgcagaacg atgcgggcat tgccgcant atttgcaag 120
atctgagccc tcaggnccctc gatgatctt aagtaanggc tccagtctt gacctgggt 180
ccctttttt ccaagtgctc ccggattttt ctctccagcc tccggttctc ggtctccaag 240
ncttctact ctgtccagga aaagaggcca ggcggncat cagggctttt gcatggact 299

<210> 293
<211> 101
<212> DNA
<213> Homo sapien

<400> 293
agcgtggtcg cggccgaggt tgtacaagct ttttttttt ttttttttt ttttttttt 60
tttttttttt ttttttttt ttttttttt ttttttttt t 101

<210> 294
<211> 285
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(285)
<223> n = A,T,C or G

<400> 294
tcgagcggcc gcccgggcag gtctgccaac accaagattt gccccggccg catccacaca 60
gttnngtgtgc ggggaggtaa caagaaatac cgtgccctga ggntggacgn ggggaatttc 120
tcctggggct cagagtgtt tactcgtaaa acaaggatca tcgatgttgt ctacaatgca 180
tctaataacg agctggttcg taccaagacc ctggtaaga attgcacatcgt gctcatngac 240
agcacaccgt accgacagtg ggtaccgaag tcccactatg cnccct 285

<210> 295
<211> 216
<212> DNA
<213> Homo sapien

<400> 295
tcgagcggcc gcccgggcag gtccaccaca cccaattcct tgctggtac atggcagccg 60
ccacgtgcc a gattaccgg ctacatcate aagtatgaga agcctgggtc tcctcccaga 120
gaagtggtcc ctcggccccg ccctgggtgc acagaggcta ctattactgg cctggaaccg 180
gaaaccgaat atacaattta tgtcattgcc ctgaag 216

<210> 296
<211> 414
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(414)
<223> n = A,T,C or G

<400> 296
agcgtgnctn cggccgagga tgggaagct cgnctgtctt tttccttcca atcagggct 60
nnntctctg attattcttc agggaanga cataaattgt atattcggt cccggttcca 120
gnccagtaat agtagcctct gtgacaccag ggccggggccg agggaccact tctctggag 180
gagaccagg cttctcatac ttgatgatga agccgtaat cctggcacgt gggcggtgc 240
catgatacca ccaangaatt gggtgtggtg gacctgccc ggcgggccc tcgaaaancc 300
gaattcntgc aagaatatcc atcacacttg ggcgggccc tcgaaccatg catcntaaaa 360
gggccccat ttccccctta ttaggngaag ccncattta caaattccac ttgg 414

<210> 297
<211> 376
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(376)
<223> n = A,T,C or G

<400> 297
tcgagcggcc gcccgggcag gtctcgccgt cgcaactggtg atgctggtcc tgttggtccc 60
cccgccctc ctggacacctc tggccccct ggtcctccca gcgctggtt cgacttcagc 120
ttcctgcccc agccacctca agagaaggct cacgatggtg gccgctacta ccgggctgat 180
gatgccaatg tggtcgtga ccgtgacctc gaggtggaca ccaccctcaa gagccttgag 240
ccagcagaat cgaaaacatt cggAACCCAA gaaggggcaag cccgcaaaga aacccccc 300
gcacctggcc gngaacctcc aagaangtgc ccacntctt actggaaaa aaaggaaaa 360
ntacttggaa ttggac 376

<210> 298
<211> 357
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(357)
<223> n = A,T,C or G

<400> 298

agcgtggtcg cggccgaggt ccacatcgcc agggtcggag ccctggccgc cataactcgaa	60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgcct tggggttctt	120
gctgatgtac cagttcttct gggccacact gggctgaatg gggcacacgc aggtctcacc	180
agtctccatg ttgcagaaga ctggatggc atccagggtt cagccttggt tggggtaat	240
ccagttacttccacttcc agtcagaatg ggcacatctt gaggtcacgg cagggtgcgg	300
gcggggttct tgccggctgc cttctggc tcccggaaatg ttctnngaac ttgctgg	357
<210> 299	
<211> 307	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(307)	
<223> n = A,T,C or G	
<400> 299	
agcgtggtcg cggccgaggt ccactagagg tctgtgtgcc attgcccagg cagagtctct	60
gcgttacaaa ctccttaggag ggcttgctgt gcggagggcc tgctatgggt tgctgcgggt	120
catcatggag agtggggcca aaggctgcga ggttgtggtg tctgggaaac tccgaggaca	180
gagggtctaaa tccatgaatg ttgtggatgg cctgatgatc cacagcggag accctgttaa	240
ctactacgtt gacacttgct tgtgcgccac gtgtgctca nacanggtg ggctggcat	300
caagng	307
<210> 300	
<211> 351	
<212> DNA	
<213> Homo sapien	
<400> 300	
tcgagcggcc gccccggcag gtctgccaag gagaccctgt tatgctgtgg ggactggctg	60
ggccatggca gcgggctctg gcttcccacc cttctgttct gagatgggg tggtggcag	120
tatctcatct ttgggttcca caatgctcac gtggtcaggg aggggcttct tagggccaat	180
cattaccagtt gggcccagg gcagcatgat cttcacctt atgcccagca caccctgtct	240
gagcaacacg tggcgacacag caagtgtcaa cgtaagtaag ttaacagggt ctccgtgtg	300
gatcatcagg ccatccacaa acttcatggg tttAACCTC tggcgtggaa g	351
<210> 301	
<211> 330	
<212> DNA	
<213> Homo sapien	
<400> 301	
tcgagcggcc gccccggcag gtgtttcaga ggttccaagg tccactgtgg aggtcccagg	60
agtgcgtggtg gtgggcacag aggtccgatg ggtgaaacca ttgacataga gactgttccct	120
gtccagggtg taggggcca gctctttgat gccattggcc agtggctca gctcccagta	180
cagccgctct ctgttgagtc caggctttt ggggtcaaga tggatggatgc agatggcatc	240
cactccagtg gctgctccat cttctcgaa cctgagagag gtcagtcgc agccagagta	300
cagagggcca acactgggt tctttgaata	330
<210> 302	
<211> 317	
<212> DNA	
<213> Homo sapien	

<220>
<221> misc_feature
<222> (1)...(317)
<223> n = A,T,C or G

<400> 302
agcgtggtcg cggccgaggt ctgtactggg agctaagcaa actgaccaat gacattgaag 60
agctgggccc ctacaccctg gacaggaaca gtctctatgt caatggttc acccatcaga 120
gctctgtgn caccaccaggc actcctggg cctccacagt ggatttcaga acctcaggga 180
ctccatcctc cctctccaggc cccacaatta tggctgctgg ccctctcctg gtaccattca 240
ccctcaactt caccatcacc aacctgcagt atggggagga catgggtcac cctgnctcca 300
ggaagttcaa caccaca 317

<210> 303
<211> 283
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(283)
<223> n = A,T,C or G

<400> 303
tcgagcggcc gcccgacag gtctggcgg atagcacccg gcatatttg gaatggatga 60
ggtctggcac ctgagcagt ccagcgagga cttggtctta gttgagcaat ttggcttagga 120
ggatagtatg cagcacggnt ctgagnctgt gggatagctg ccatgaagta acctgaagga 180
ggtgctggct ggtangggtt gattacaggg ttgggaacag ctcgtacact tgccattctc 240
tgcataatact gtttagttag gtgagcctgg ccctcttctt ttg 283

<210> 304
<211> 72
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(72)
<223> n = A,T,C or G

<400> 304
agcgtggtcg cggccgaggt gagccacagg tgaccggggc tgaagctggg gctgctggnc 60
ctgctggtcc tg 72

<210> 305
<211> 245
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(245)
<223> n = A,T,C or G

<400> 305
 cagcngctcc nacggggcct gngggacc aaacaccgtt ttcaccctta ggccctttgg 60
 ctccctttc tccttagca ccaggttgac cagcagcncc ancaggacca gcaaatccat 120
 tggggccagc aggaccgacc tcaccacgtt caccagggtt tccccgagga ccagcaggac 180
 cagcaggacc agcagcccc gcttcgcccc ggtcacctgt ggctcacctc ggccgcgacc 240
 acgct 245

<210> 306
 <211> 246
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(246)
 <223> n = A,T,C or G

<400> 306
 tcgagcggtc gcccgggcag gtccaccggg atagccgggg gtctggcagg aatgggaggc 60
 atccagaacg agaaggagac catcaaaagc ctgaacgacc gcctggcctc ttacctggac 120
 agagtggagga gcctggagac cganaaccgg aggctggana gcaaaatccg ggagcaactg 180
 gagaagaagg gaccccaggt caagagactg gagccattac ttcaagatca tcgagggacc 240
 tggagg 246

<210> 307
 <211> 333
 <212> DNA
 <213> Homo sapien

<220>
 <221> misc_feature
 <222> (1)...(333)
 <223> n = A,T,C or G

<400> 307
 agcgnngtgc cggccgaggt ccagctctgt ctcataacttgc actctaaagt catcagcagc 60
 aagacgggc aatgtcaatct gcagaacgt gcgggcatttgc tccgcgttat ttgcgaagat 120
 ctgagccctc aggtcctcga tgatcttgc gtaatggctc cagtcgtctga cctgggtcc 180
 cttcttctcc aagtgcctcc ggattttgc ctccagcctc cggttctcgg tctccaggct 240
 cctcactctg tccaggttaag aaggcccagg cggtcgatca ggctttgcgt ggtctccctc 300
 tcgttcttgc tgcctcccat tcctgccaga ccc 333

<210> 308
 <211> 310
 <212> DNA
 <213> Homo sapien

<400> 308
 tcgagcggtc gcccgggcag gtcaggaagc acattggct tagagccact gcctcccttgg 60
 ttccacactgt gctgcggaca tctccaggaa gtgcagaagg gaagcagggtc aaactgctca 120
 gatcagtcag actggctgtt ctcagttctc acctgagcaaa ggtcgtctg cagccagagt 180
 acagaggggcc aacactgggtt ttcttgcataa agggcttgag cagaccctgc agaaccctct 240
 tccgtgggtgt tgaacttcctt ggaaccagg gtgttgcgt ttttccatca taatgcaagg 300
 ttgggtatgg 310

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<210> 309
<211> 429
<212> DNA
<213> Homo sapien

<400> 309
agcgtggtcg cggccgaggc ccacatcgcc agggtcggag ccctggccgc cataactcgaa      60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgcct tggggttctt      120
gctgatgtac cagttcttct gggccacact gggctgagtg gggcacaccg caggtctcac      180
cagtctccat gttcagaag actttgatgg catccaggtt gcagccttgg ttggggtcaa      240
tccagttactc tccactcttc cagtcagaag tgggcacatc ttgaggtcac cggcagggtgc      300
cgggccccggg gttcttgcgg ctggccctct gggctccgga tggtctcgat ctgcttggct      360
caggctcttgcagggttggg tccacctcga ggtcacggc accgaaacct gcccggcggg      420
ccccctcgaa      429

<210> 310
<211> 430
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(430)
<223> n = A,T,C or G

<400> 310
tcgagcggtc gccccggcag gtttcgtgac cgtgacctcg aggtggacac caccctcaag      60
agcctgagcc agcagatcgaa acatccgg agcccagagg gcagccgcaa gaaccccgcc      120
cgcacccgtcc gtgacccaa gatgtgccac tctgactgga agagtggaga gtactggatt      180
gaccccaacc aaggctgcaa cctggatgcc atcaaagtct tctgcaacat ggagactgg      240
gagacccgtcg tgcgttccac tcagcccaact gttggcccaag aagaaaactgg tacatcagca      300
aggaacccca aggacaagag gcattgtctt gttcggcga gnagcatgac ccgatggatt      360
ccagtttcga gtattggcgg ccaggcttc ccgacccttg ccgatgtgga cctcggccgc      420
gaccaccgct      430

<210> 311
<211> 2996
<212> DNA
<213> Homo sapien

<400> 311
cagccaccgg agtggatgcc atctgcaccc accgcctcg acccacaggc cctgggctgg      60
acagagagca gctgtatttg gagctgagcc agctgaccca cagcatcaact gagctggcc      120
cctacaccct ggacaggac agtctctatg tcaatggtt cacacagcgg agtctgtgc      180
ccaccacttag cattcctggg acccccacag tggacctggg aacatctggg actccagtt      240
ctaaacctgg tccctcggt gccagccctc tccctgggtctt attcactctc aacttcacca      300
tcaccaacct gcggtatgag gagaacatgc agcaccctgg ctccaggaag ttcaacacca      360
cgagaggggt cttcaggcgc ctggccctg ttcaagagca ccagtgttgg ccctctgtac      420
tctggctgca gactgactt gctcaggcct gaaaaggatg ggacagccac tggagtggat      480
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<210> 312

<211> 914

<212> PRT

<213> Homo sapien

<400> 312

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								20			25			30		
Asn	Leu	Val	Pro	Arg	Leu	Pro	Ala	Leu	Ser	Trp	Cys	Tyr	Ser	Leu	Ser	
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Thr	Ser	Pro	Ser	Pro	Thr	Cys	Gly	Met	Arg	Arg	Thr	Cys	Ser	Thr	Leu	
								50			55			60		
Ala	Pro	Gly	Ser	Ser	Thr	Pro	Arg	Arg	Gly	Ser	Phe	Arg	Ala	Trp	Ser	
								65			70			75		80
Leu	Phe	Lys	Ser	Thr	Ser	Val	Gly	Pro	Leu	Tyr	Ser	Gly	Cys	Arg	Leu	
								85			90			95		

Thr Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala
100 105 110
Ile Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu
115 120 125
Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu
130 135 140
Gly Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr
145 150 155 160
His Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val
165 170 175
Tyr Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala
180 185 190
Ala Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn
195 200 205
Leu Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr
210 215 220
Thr Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr
225 230 235 240
Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro
245 250 255
Glu Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg
260 265 270
Pro Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu
275 280 285
Leu Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu
290 295 300
Asp Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val
305 310 315 320
Pro Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn
325 330 335
Phe Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly
340 345 350
Ser Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser
355 360 365
Pro Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg
370 375 380
Val Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp
385 390 395 400
Leu Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile
405 410 415
Lys Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg
420 425 430
Leu Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr
435 440 445
Asn Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr
450 455 460
Thr Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His
465 470 475 480
Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser
485 490 495
Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val
500 505 510
Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro
515 520 525
Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly

530	535	540
Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val		
545	550	555
Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu		560
565	570	575
Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser		
580	585	590
Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu		
595	600	605
Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp		
610	615	620
Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys		
625	630	635
640		
Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe		
645	650	655
Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys		
660	665	670
Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe		
675	680	685
Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr		
690	695	700
Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln		
705	710	715
720		
Pro Thr Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile		
725	730	735
Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn		
740	745	750
Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln Leu Phe		
755	760	765
Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val Ser Thr		
770	775	780
Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser Leu Cys		
785	790	795
800		
Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile Tyr Glu		
805	810	815
Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn Phe Thr		
820	825	830
Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe Pro Asn Arg Asn		
835	840	845
Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp Ala Val Ile Leu		
850	855	860
Ile Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys Leu Ile Cys Gly		
865	870	875
880		
Val Leu Val Thr Thr Arg Arg Arg Lys Lys Glu Gly Glu Tyr Asn Val		
885	890	895
Gln Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu Asp Leu Glu Asp		
900	905	910
Leu Gln		

<210> 313
<211> 656
<212> DNA
<213> Homo sapiens

<400> 313

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ttgtaaagga aagccacaac atgtccaagg gacctgaggc gacttggagg ctgagcaag 120
tgcagtttgt ctacgactcc tcggagaaaa cccacttcaa agacgcagtc agtgctggg 180
agcacacagc caactcgac cacctctctg ctttggcac ccccgttggg aagtcttatg 240
agtgtcaagc tcaacaaacc atttcactgg cctctagtga tccgcagaag acggtcacca 300
tgatcctgtc tgccgtccac atccaacctt ttgacattt ctcagattt gtcttcagtg 360
aagagcataa atgcccagtg gatgagcggg agcaactgga agaaacacctg cccctgattt 420
tggggctcat ctggggctc gtcatcatgg taacactcgc gatttaccac gtccaccaca 480
aatgactgc caaccagggtg cagatccctc gggacagatc ccagtataag cacatggct 540
agaggccgtt aggccaggcac cccctattcc tgctccccca actggatcag gtagaaacaac 600
aaaagcactt ttccatctt tacacgagat acaccaacat agctacaatc aaacag 656

<210> 314

<211> 519

<212> DNA

<213> Homo sapiens

<400> 314

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gtttaaggat ggtctcggtg gttaggccca ctagaataaa ctgagtc当地 tacctctaca 180
cagttatgtt taactgggtct ctctgacacc gggaggaagg tggcgggggtt taggtgttgc 240
aaacttcaat ggttatgcgg ggtatgttcc agagcaagct ttggtatcta gctagtctag 300
cattcattag ctaatgggtt ctttgggtat ttattaaaat caccacagca tagggggact 360
ttatgtttag gttttgtcta agagtttagt tatctgcttc ttgtgctaac agggctattt 420
ctaccaggga ctttggacat gggggccac gtttggaaac ctcatctagt tttttgaga 480
gataggccac tggccttggc cctcgccgc gaccacgct 519

<210> 315

<211> 441

<212> DNA

<213> Homo sapiens

<400> 315

cacagagcgt ttattgacac caccactcct gaaaattggg atttcttatt aggttccct 60
aaaatgttccc atgttgatta catgtaaata gtcacatata tacaatgaag gcagtttctt 120
cagaggcaac cagggttat agtgcataat aaatgtcattt tctttgtgc tactgactca 180
ttgtcaaacc tctctgact gtttcagcc tctccacgtt gcctctgtcc tgcttcttag 240
ttccttcttt gtgacaaacc aaaagaataa gaggatttag aacaggactg ctttccct 300
atgatttaaa aattccatg actttcgccc ttgggagaaa tttccaagga aatctcttc 360
gctcgctctc tccgtttcc tttgtgagct tctggggag gtttagtggt gacttttga 420
tacaaaaaaaaa tgcattttgtt g 441

<210> 316

<211> 247

<212> DNA

<213> Homo sapiens

<400> 316

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ggcgccgatac tccattatgg cccctcgccc ttagggctg gaatagttttag aaaaggcaac 120
ccagtcatac ttggtaagaa gagagacatg ccccaaccc tggcgccctt tttcctcacg 180
atctgctgtc cttacttcag cgactgcagg agcttcaccc gcaagaaaac agcattgagc 240
tgctgac 247

<210> 317
<211> 409
<212> DNA
<213> Homo sapiens

<400> 317
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cacatgtgg gatgaacagc agcctggtt tgtagccag ggtgtccatg gatttgaccc 120
gaatgctccc tggaggccct gtggcgagga caggcactgg atggtccaga ccctctgct 180
ggaggagtgg tggagccagg actggcctt cagccatgag ggctagaata acctgaccc 240
ttgcattcta acactgggtc attaatgaca cctttccagt ggatgttgca aaaaccaaca 300
ctgtcaggaa cctggccctg ggagggtca ggtgagctca caaggagagg tcaagccaag 360
ccaaaggta ggkaacacac aacaccaggaa aaccaggccc cccaaacca 409

<210> 318
<211> 320
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(320)
<223> n = A,T,C or G

<400> 318
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gtcattggtc aggaagctgt cctggacgta gccatctcc acatccatgg gatatggccata 180
gtcaactgggc ctttgctcgg gaggaggcat cacccagaaa ggcgagatct tggactcggg 240
gcctgggttg ccagaatagt aaggggagca nacggggcg aggccaggct ggaagccatt 300
gctggagccc tgacggcgca 320

<210> 319
<211> 212
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(212)
<223> n = A,T,C or G

<400> 319
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ggcctcagag ccctggtaaa tgtgaccctt ttgggggtct tttcaaccc anacctggtc 180
accctgctgc agacctcgcc cgccgaccacg ct 212

<210> 320
<211> 769
<212> DNA
<213> Homo sapiens

<400> 320

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tccaactcac cagttagaga tgagactgcc cagtagtcag ctttcatttc ctgggcacc 120
tggagggcgt cttctccat cagcgatac tgagcaggg tacttagatc ttcttgaa 180
cctacaagga agagaagcac actggaaagg tcattctct tcagggcatc ggccagccac 240
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acttggatg ttccagatg gccacatcat tcaggttggaa gacaatgtg atggcttgaa 480
agagtggcag aaacagcccc aggttgcac ggaagacact actgctcatt tccccaaatcc 540
ttccagctcc atatgagaaa gccatgtgca ctctgagacc cacctacccc acttcaccca 600
gccccttacc ttgagctcct ctatagtagg ttgatgcaat gcattgaaac ctctcctgccc 660
cagcggatc ccaactggaa ggaaggaaaga gtgaagcaca ggtatgtatc ttgggggggtg 720
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<210> 321

<211> 690

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(690)

<223> n = A,T,C or G

<400> 321

tgggtgttgg gggcacctg tgctctgcag gccagacagc gatagaagcc tttgtcttg 60
cctactcccc cgaggcaac tggaggtca acgggaagac aatcatcccc tataagaagg 120
gtgcctggtg ttgcctctgc acagccatgt tctcaggctg cttcaaagcc tgggaccatg 180
cagggggct ctgtgaggc cccaggaatc cttgtcgcat gagctgccc aaccatggac 240
gtctcaacat cagcacctgc cactgccact gtccccctgg ctacacggc agatactgcc 300
aagtggatg cgcctgcag tgtgtgcacg gccgggtccgg ggaggaggag tgctcgtgcg 360
tctgtgacat cgctacggg ggagccactgt gtcacccaa ggtgcatttt ccctccaca 420
cctgtgacat gaggatcgac ggagactgtc tcatgggtgc ttcagaggca gacacattt 480
acagaagcca ggtatggaaatg tcagaggaat ggcgggtgc tggccagat caagagcc 540
aaagtgcagg acatcctcgc cttctatctg ggccgctgg agaccacca cgaggtgact 600
gacagtgtact ttgagaccag gaacttctgg atngggctca cttacaagac cgccaaggac 660
tccttncgtt gggccacagg ggagcaccag 690

<210> 322

<211> 104

<212> DNA

<213> Homo sapiens

<400> 322

gtcgcaagcc ggagcaccac catgtagcct ttcccgaagt accggacctt ctcctcc 60
acgctcacat cacggacatc atggagcagg accaccaccc ggtc 104

<210> 323

<211> 118

<212> DNA

<213> Homo sapiens

<400> 323

ggccctggc cgcttccaaa tgaccaggaa ggtggctgc gacgaatgcc ctaatgtcaa 60
actagtgaat gaagaacgaa cactgaaatg agaaatagag cttgggtga gagacgga 118

<210> 324
<211> 354
<212> DNA
<213> Homo sapiens

<400> 324
tgctctccgg gagcttgaag aagaaaactgg ctacaaagg gacattgccg aatgttctcc 60
agcggtctgt atggacccag gcttgtcaaa ctgtactata cacatcgtga cagtcaccat 120
taacggagat gatgccgaaa acgcaaggcc gaagccaaag ccagggatg gagagttgt 180
ggaagtcat tctttaccca agaatgacct gctgcagaga cttgatgctc tggtagctga 240
agaacatctc acagtggacg ccagggtcta ttccctacgct cttagcgtga aacatgcaa 300
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<210> 325
<211> 642
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(642)
<223> n = A,T,C or G

<400> 325
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ggcacattcaa taggtcgctg attggcctt gcaccagcag tggtagtcgt acctatttca 180
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ccatcttcat catccacttc tgcttacagt ttgctgctta caataactta atgatggatt 300
gagttatctg ggtggctctt agccatctgg gcagtggtt tctgtctaac caaaggccat 360
tggcctcaaa ccctgcattt ggttttagggg ctaacagagc tcctcagata atcttcacac 420
acatgttaact gctggagatc ttattctatt atgaataaga aacgagaagt ttttccaaag 480
tggtagtcag gatctgaagg ctgtcattca gataacccag ctttccctt tggcttttag 540
ccattcaga ctttgccaga gtcaagccaa ggattgcttt ttgcctacag ttttctgcca 600
aatggcctag ttccctgagta cctggaaacc agagagaaag ag 642

<210> 326
<211> 455
<212> DNA
<213> Homo sapiens

<400> 326
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actttcacct tctcgctt cctgcttgc tcattgacaa acttcccgta ccaggcatg 120
acgatgtga gcccattct ggactcttgc gcctcaatta tccttcggac agattcctgc 180
atcagccgga cagcggactc cgcccttgc ttcttctgca gcacatcggt ggcggcgctt 240
tccctctgtc tctccaattt cttcttttc tgagccctga ggtatggttt gatgtacaga 300
cggtgcatgg caaagttagac cactagaggc cccacggtggtt catagaacat ggcgctggc 360
agaagcttgtt ccgtcaagtg aatagggaaag aagtatgtct gactggccctt gttgagctt 420
actttgagag aaacgcccctg tggaaactcca acgct 455

<210> 327
<211> 321
<212> DNA

<213> Homo sapiens

<400> 327

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ctctctgagt tctcttcaat gatgctgatg atgcagtcca cgatacgccg cttatactca 120
aagccacccct ctccccgcag catggtaac agaaagttca taaggacggc gtgttgcgaa 180
ggatatttct gacacagggc actgatggcc tgacaaccca ccacccctgaa ttcatccgag 240
atttctgaca tgaaggagga gatctgcttc atgaggcggt cgatgctgct ctcgctgccc 300
gtcttaagga ggggtggat g 321

<210> 328

<211> 476

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(476)

<223> n = A,T,C or G

<400> 328

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cagtgtgcag tctgatgaag tctgggtggg tgggtctac gggctggcag ctaccatgat 120
ccaagagta atgcactctt tttcccatct cttccaccatc tggatccctgg ccmagaaaaaa 180
cttcccttca aaccaaccaa aatttcctt caaaggcata acccaaatgc catccttgg 240
ccggctcaat aaagcctccc ccattttcc cctggtatgc attcccgagc tccctggcct 300
tnccaggcctt nctgtctgtg ggtcatagtt tatctcctcc cacttgctgg gagtccttg 360
aaggcaaaaga ctctactgccc tccatctatc cagtggaagt ggctttcag agggtgccaa 420
gttagtatgt atgactgtca tctctccaa cagggcctga cttggcaggc cttcca 476

<210> 329

<211> 340

<212> DNA

<213> Homo sapiens

<400> 329

cgagggagat tgccagcacc ctgatggaga gtgagatgat ggagatcttg tcagtgtctag 60
ctaagggtga ccacagccct gtcacaaggg ctgctgcagc ctgcctggac aaagcagtgg 120
aatatggct tatccaaccc aaccaagatg gagagtgagg gggttgtccc tgggcccac 180
gctcatgcac acgtcaccta ttgtggcagc gagagtaagg acggaagcag ctggctgg 240
tggtggctgg catgcccata actcttgcctt atcctcgctt gctgccttag gatgtcctt 300
gttctgagtc agcggccacg ttcaagtaca cagccctgct 340

<210> 330

<211> 277

<212> DNA

<213> Homo sapiens

<400> 330

tgtcaccatc acattgggtgc caaatacca gaagacatcg tagatgaaga gtccgcccag 60
caggatgcag ccagtgtctga cattgttgag gtgcaggagc tctactccat taagggagaa 120
ggccaggcca aaaaggtgt tggcaatcca gtgcttcctc agcaggtacc agacgccaac 180
gatgctgctc agggccagggc acaccaggc cttgggtgtca aattcataat tgatgtctc 240
ctccttgcctt tcccagaacc ctgtgtgaag agcagac 277

<210> 331
<211> 136
<212> DNA
<213> Homo sapiens

<400> 331
ttgctccca cctccttct ctgtcctctc ctgaggttct gccttacaat ggggacactg 60
atacaaacca cacacacaat gaggatgaaa acagataaca gtaaaatga ctcacacctgc 120
ccggcgccc gctcgaa 136

<210> 332
<211> 184
<212> DNA
<213> Homo sapiens

<400> 332
tttgagata aacgcagata ctgcaatgca taaaaacgct taaaatactc atcaggatg 60
ttgctgatct tatttgtgtc taagtagaga gttagaagag agacagggag accagaaggc 120
agtctgcta tctgattgaa gctcaagtca aggtattcga gtgatttaag acctttaaaa 180
gcag 184

<210> 333
<211> 384
<212> DNA
<213> Homo sapiens

<400> 333
cgaaaaactt cgaggaattt ctcaaagtgc tgggggtgaa tgtgatgctg aggaagattt 60
ctgtggctgc agcgtccaag ccagcagtgg agatcaaaca ggagggagac actttctaca 120
tcaaaacctc caccaccgtt cgaccacac agattaactt caaggttggg gaggagttt 180
aggagcagac tgtggatggg aggccctgtt agagcctgtt gaaatgggag agtgagaata 240
aatggcttg tgagcagaag ctccctgaagg gagagggccc caagacctcg tggaccagag 300
aactgaccaa cgatggggaa ctgatcctga ccatgacggc ggttgcacca 360
gggtctacgt ccgagagtga gcgg 384

<210> 334
<211> 169
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(169)
<223> n = A,T,C or G

<400> 334
cnacaaacag agcagacacc ctggatccgg tcctgctact ggccaggacg gctggaccgt 60
aaaattgaat ttccacttcc tgaccggccgc cagaagagat tgattttctc cactatcact 120
agcaagatga acctctctga ggaggttgc ttggaagact atgtngccc 169

<210> 335
<211> 185
<212> DNA
<213> Homo sapiens

<400> 335
ccaggttgc agcccaggct gcacatcagg ggactgcctc gcaatacttc atgctgttgc 60
tgctgactga tggtgctgtg acggatgtgg aagccacacg tgaggctgtg gtgcgtgcct 120
cgaacctgcc catgtcagtg atcattgtgg gtgtgggtgg tgctgacttt gaggccatgg 180
agcag 185

<210> 336
<211> 358
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(358)
<223> n = A,T,C or G

<400> 336
ctgccccctgc cttagccggg ccaganacac acccaggatg gcattggccc caaacttgga 60
tttgttctca gtcccatcca actccagcat cagggtgtcc agtttctctt gctccaccac 120
agagagacct gagctgatga gggctggcgc gatgggtggag ttgatgtggt ccactgcctt 180
caggacacct ttgcctaagt aacgctgttt gtctccatcc ctcagctcca gggcctcata 240
gatgcccgtt gaggtccac tgggcactgc agccccgaaa agacotttg cagtatagag 300
atccacactcc actgtgggtt tcccgccggaa gtccaggatc tcccgccccc agatcttc 358

<210> 337
<211> 271
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(271)
<223> n = A,T,C or G

<400> 337
cacaaagcca ccagccnggg aaatcagaat ttacttgatg caactgactt gtaatagcca 60
gaaatccctgc ccagcatggg attcagaacc tggctctgcaa ccaaattccac cgtcaaagg 120
catacaggat aaaacaaatt caattgcctt ttccacatta atagcatcaa gcttcccaa 180
caaagccaaa gttgccaccg cacaaaaaga gaatcttgc tcaatttctc cctactttat 240
aaaagtagat tttcacatc ccatgaagca g 271

<210> 338
<211> 326
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(326)
<223> n = A,T,C or G

<400> 338
ctgtgctccc gactngnnca tctcaggtac caccgactgc actgggcggg gccctctggg 60
gggaaaggct ccacggggca gggatacatc tcgaggccag tcattctctg gaggcagccc 120
aatcaggtca aagatttgc ccaactggtc ggcttcagag ttccacaga agagaggctt 180

tcgacgaaac atctctgcaa agatacagcc aacactccac atgtccacag gtgttgata 240
tgtggactgc agaagaacctt cgggagctcg gtaccagagt gtaacaacca cgggtgtaa 300
tgccatctgg tagctgtaga ttctgg 326

<210> 339
<211> 260
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(260)
<223> n = A,T,C or G

<400> 339
ttcacctgag gactcatttc gtgcccttg ttgacttcaa gcaaagnct tcanggtctn 60
caaggacgnc acatttccac ttgcgaatgn nctcanggct catcttgaag aanaagnanc 120
ccaagtgtcg gatcccagac tcgggggtaa ccttgggtt aagagctcat ccagttatg 180
ctttaggacg tccanctact cgggggagct ggaagcctgc gtggatgcgg ccctgttgg 240
cctcgccgc gaccacgcta 260

<210> 340
<211> 220
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(220)
<223> n = A,T,C or G

<400> 340
ctggaagccc ggctnggnct ggcagcggaa ggagccaggc aggttcacgc agcgggtctg 60
gcagtagcgg tagcggact cgtctatgtc cacacactcg qqcccgatct tgccgttaacc 120
atcagggcag gtgcactgat aggagccagg caagttatgg cagtcctggc tggggcgaca 180
gtcgtgcagg gcctggcac actcggtccac atccacacag 220

<210> 341
<211> 384
<212> DNA
<213> Homo sapiens

<400> 341
ctgctaccag gggagcgaga gctgactata ccagcctcggt ctaatgtatt ctacgccatg 60
gatggagctt cacacgattt cctcctgcgg cagcggcgaa ggtcctctac tgctacaccg 120
ggcgtcacca gtggcccgta tgcctcagga actcctccgta gtgaggggagg agggggctcc 180
tttccccagga tcaaggccac agggaggaag attgcacggg cactgttctg aggaggaagc 240
cccggttggct tacagaagtc atggtgttca taccagatgt gggttagccat cctgaatgtt 300
ggcaattata tcacatttagt acagaaattt agaaaaggag ccagccaccc tggggcagtg 360
aagtgcactt ggtttaccag acag 384

<210> 342
<211> 245
<212> DNA
<213> Homo sapiens

<400> 342
ctggctaagg tcatacattgt tactggtggg caccatgtcc ttgaagcttc aggcaagcaa 60
tgtaaccaac aagaatgacc ccaagtccat caactctcgat gtcttcattt gaaacctcaa 120
cacagctctg gtgaagaaat cagatgtgga gaccatcttc tctaagtatg gccgtgtggc 180
cggtgtttct gtgcacaagg gctatgcctt tgtagtac tccaatgagc gccatgcccg 240
ggcag 245

<210> 343
<211> 611
<212> DNA
<213> Homo sapiens

<400> 343
ccaaaaaaaat caagatttaa ttttttatt tgcactgaaa aactaatcat aactgttaat 60
tctcagccat ctttgaagct taaaagaaga gtctttggta tttttaaac gttagcagac 120
tttcctgcca gtgtcagaaa atcctattt tgaatcctgt cggtattcct tggtatctga 180
aaaaaataacc aaatagttacc atacatgagt tatttctaag tttgaaaaat aaaaagaaat 240
tgcacatcac taattacaaa atacaagttc tggaaaaat atttttcttc atttttaaac 300
tttttttaac taataatggc tttgaaagaa gaggcttaat ttgggggtgg taactaaaat 360
caaaagaaat gattgacttg agggtctctg tttggtttaa atacatcatt agcttaaata 420
agcagcagaa ggttagttt aattatgttag ctctgtttaa tattaagtgt ttttgcgt 480
ttttacctca atttgaacag ataagttgc ctgcattgtc gacatgcctc agaaccatga 540
atagccccgtt ctagatcttg ggaacatgga tcttagagtc ctggataa agttttata 600
taaataacccc c 611

<210> 344
<211> 311
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(311)
<223> n = A,T,C or G

<400> 344
nctcgaaaaa gcccaagaca gcagaaggcag acacacctccag tgaacttagca aagaaaagca 60
aagaagtatt cagaaaaagag atgtcccaat tcatacgccat gtgcctgaac ccttaccgga 120
aacacctgt caaagtggga agaattacca caactgaaga cttaaacat ctggctcgca 180
agctgactca cgggtttatg aataaggagc tgaagtactg taagaatcct gaggacctgg 240
agtgcattgtt gaaatgtgaaa cacaaaacca aggantacat taanaagtac atgcannaan 300
tttggggctt g 311

<210> 345
<211> 201
<212> DNA
<213> Homo sapiens

<400> 345
cacacggtca tcccgactgc caacctggag gcccaggccc tgtggaaagga gccgggcagc 60
aatgtcacca tgagtgtgga tgctgagtgt gtgcctcatgg tcagggacct tctcaggtac 120
ttctactccc gaaggattga catcacccatg tgtagtca agtgcttcca caagctggcc 180
tctgcctatg gggccaggca g 201

<210> 346
<211> 370
<212> DNA
<213> Homo sapiens

<400> 346
ctgctccagg gcgtgggtgtg ccttcgtggc ctctgcctcc tccgaggagc caggctgtgt 60
tctcttcaga atgttctgga gcagcagttt gaggcggtgt atgcgttgaa agggcagaat 120
cagaaaggac ttgagggaaa ggcgctggca gacgggggtcg ctctccagct tctccaagac 180
ctcccggaaa ttgctgttgc tattcatca gctctgaaag gtgcgttccct gataggctg 240
gttggtgaca taaggcaggt agaccggcg gaagtctggg gcgtggttca ggactacgtc 300
acataacttgg aaggagaaga tattgttctc aaagttctct tccaggtctg aaaggaacgt 360
ggcgctgacg 370

<210> 347
<211> 416
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(416)
<223> n = A,T,C or G

<400> 347
ctgttgtgct gtgtatggac gtgggcttta ccatgagtaa ctccattcct ggtatagaat 60
ccccatttga acaagcaaag aagggtataa ccatgtttgt acagcgacag gtgtttgtg 120
agaacaagga ttagattgct tttagtcgtt ttggcacaga tggactgac aatccccctt 180
ctgggtgggaa tcagtatca g aacatcacag tgcacagaca tctgtatcta ccagattttg 240
atttgctgga ggacattgaa agcaaaatcc aaccagggttc tcaacaggct gacttcctgg 300
atgcactaat cgtgagcatg gatgtgattc aacatgaaac aataggaaag aagtttgag 360
aagaggcata ttgaaatatt cactgaccc aagcagcccc attcagcaaa agtcan 416

<210> 348
<211> 351
<212> DNA
<213> Homo sapiens

<400> 348
gtacaggaga ggtatggcagg tgcagagcgg gcactgagct ctgcaggta aagggtcg 60
cagttggatg ctctcctgga ggctctgaaa ttgaaacggg caggaaatag tctggcagcc 120
tctacagcag aagaaacggc aggcaatgtcc caggacgacg caggagacag atgccttcct 180
cttgtctcaa ctgcaaagag gcgttccttc ctcttcact aatccctcctc agcacagacc 240
ctttacgggt gtcaggctgg gggacagtaa ggtctttccc ttcccacaag gccatatctc 300
aggctgtctc agtggggggaa aaccttggac aataccggg ctttcttggg c 351

<210> 349
<211> 207
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(207)
<223> n = A,T,C or G

<400> 349
nccgggacat ctcccaccctc aacagtggca agaagagcct ggagactgaa cacaaggcct 60
tgaccagtga gattgcactg ctgcagtcca ggctgaagac agagggctct gatctgtcg 120
acagagttag cggaaatgcag aagctggatg cacaggtcaa ggagctggtg ctgaagtcgg 180
cggtggaggc tgagcgcctg gtggctg 207

<210> 350
<211> 323
<212> DNA
<213> Homo sapiens

<400> 350
ccatacaggg ctgttgccca ggccttagag gtcattcctc gtaccctgat ccagaactgt 60
ggggccagca ccatccgtct acttacctcc ctccggccca agcacaccca ggagaactgt 120
gagacctggg gtgtaaatgg tgagacgggt actttggtgg acatgaagga actgggcata 180
tgggagccat tggctgtgaa gctgcagact tataagacag cagttggagac ggcagttctg 240
ctactgcgaa ttgatgacat cgtttcaggc cacgaaaaga aaggcgatga ccagagccgg 300
caaggcgggg ctccctgatgc tgg 323

<210> 351
<211> 353
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(353)
<223> n = A,T,C or G

<400> 351
cgccgcacatcc ctttgtccct tccantccct tttcctttnt cnggaaacgt gtatgcgggt 60
tgttttgtt ttgttagggtt tttttccctc tccacctctc cctgtctctt ttgctccatg 120
ttgtccgttt ctgtgggggtt aggttatgt ttttaatcat ctgaggtcac gtctatttcc 180
tccggactcg cctgcttggt ggcgattctc caccggtaa tatggtgcgt cccttttcc 240
ttttgttgcg aatctgagcc ttcttccctc agcttctgcc ttttgaactt tggcttcgg 300
ttctgaaacc atacttttac ctgagttcc gtgaggctga ggctgtgtgc caa 353

<210> 352
<211> 467
<212> DNA
<213> Homo sapiens

<400> 352
ctgccccacac tgatcacttg cgagatgtcc tttagggtaca agaacaggaa ttgaagtctg 60
aatttgagca gaacctgtct gagaaactct ctgaacaaga attacaattt cgtcgctctca 120
gtcaagagca agttgacaaac ttactctgg atataaatac tgcctatgcc agactcagag 180
gaatcgaaca ggctgttcaag agccatgcag ttgctgaaga ggaagccaga aaagcccacc 240
aactctggct ttcaatggag gcattaaagt acagcatgaa gacccatct gcagaaacac 300
ctactatccc gctgggttagt gcagttgagg ccatcaaagc caactgttct gataatgaat 360
tcaccccaagc tttaaccgca gctatccctc cagagtcctt gaccctgtgg gtgtacagt 420
aagagaccct tagagcccgtagt ttctatgtctg ttcaaaaaact ggcccgaa 467

<210> 353
<211> 350

<212> DNA
<213> Homo sapiens

<400> 353
ctgctgcagc cacagtagtt cctccatgg tgggtggccc tcctggtcct gctggccca 60
gaaatctgtc cccaccaga acagccccctg gaaaacggcc ccgtcctcta ccacaccttg 120
gaaatgctgc acgggaactg cctcctggag gaccagctt accttccca gacatttgtc 180
ctgattgtgt agtttcctg gactgcattt caaattgact cagaactgt ttattgcatg 240
gagttacaac aggattctga ccatgaagtt ctcttttagg taacagatcc attaactttt 300
ttgaagatgc ttcaagatcca acaccaacaa gggcaaaccctt gactgg 350

<210> 354
<211> 351
<212> DNA
<213> Homo sapiens

<400> 354
attttagatga gatctgaggc atggagacat ggagacagta tacagactcc tagatttaag 60
tttttaggtttt tttgcttttc taatcaccaa ttcttatata caatgtatat ttttagactcg 120
agcagatgtat catcttcatc ttaagtcatt ccttttgact gagatggca ggatttagagg 180
gaatggcagt atagatcaat gtcttttct gtaaagtata gaaaaaacca gagagaaaaa 240
aaagagctga caatttggaaag gtagtagaaaa attgacgata atttcttctt aacaaataat 300
agttgtatat acaaggaggc tagtcaacca gatttttattt gttgaggcg a 351

<210> 355
<211> 308
<212> DNA
<213> Homo sapiens

<400> 355
ttttggcgca agttttacag attttattaa agtcgaagct attggcttg gaagatgaaa 60
atgcaaatgt tgatgagggtg gaatttgaagc cagataccctt aataaaaatta tatcttggtt 120
ataaaaaataa gaaattaagg gttaacatca atgtgccaat gaaaaccgaa cagaacgagg 180
aacaagaaac cacacacaaa aacatcgagg aagaccgcaa actactgatt caggcggcca 240
tcgtgagaat catgaagatg aggaaggttc tgaaacacca gcagttactt ggcgagggtcc 300
tcactcag 308

<210> 356
<211> 207
<212> DNA
<213> Homo sapiens

<400> 356
ctgtcccaag tgctcccaga aggcaggatt ctgaagacca ctccagcgat atgttcaact 60
atgaagaata ctgcaccggcc aacgcagtca ctgggcctt ccgtgcattcc ttccacgc 120
ggtaactttga cgtggagagg aactcctgca ataacttcat ctatggaggc tgccggggca 180
ataagaacag ctaccgctct gaggagg 207

<210> 357
<211> 188
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature

<222> (1)...(188)
<223> n = A,T,C or G

<400> 357
tcgaccacgc cctcgtagcg catngctnc aggacgatgc tcagagtgtat gaacaccccg 60
gtgcggccca cgccagcact gcagtgacc gtgataggcc catcctgtcc aaactgctcc 120
tttgttcttat gcacctgccc gatgaagtca atgaatccct cgctgtctt gggcacgccc 180
tgctctgg 188

<210> 358
<211> 291
<212> DNA
<213> Homo sapiens

<400> 358
ctgggagcat cggcaagcta ctgccttaaa atccgatctc cccgagtgca caatttctgt 60
cccttttaag gggtcacaac actaaagatt tcacatgaaa ggggtgtat tgatttgagc 120
aggcaggcgg tacgtgacag gggctgcatg caccgggtgtt cagagagaaa cagaacaggg 180
cagggaattt cacaatgttc ttctatacaa tggctggaat ctatgaataa catcagttc 240
taagttatgg gttgattttt aactactggg tttaggccag gcaggcccag g 291

<210> 359
<211> 117
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(117)
<223> n = A,T,C or G

<400> 359
gccaccacac tccagcctgg gcaatacagc aagactgtct caaaaaaaaaaaaaaaa 60
ccccaaaaaaaaa ctc当地ang taatgaatga tacccaangn gcctttcta gaaaaag 117

<210> 360
<211> 394
<212> DNA
<213> Homo sapiens

<400> 360
ctgttcctct ggggtggcc agttctagag tggagaaaag ggagtcaaggc gcattggaa 60
tcgtgggtcc agtctgggtt cagaatctgc acatttgcac agaaatttc cctgtttgaa 120
aagtttgcac cagcttccc gggcacacca cctttgtcc caagtgtctg ccggtcgacc 180
aatctgcctg ccacacattt accaaggccag accccgggttca cccagctcgaa ggatcccagg 240
ttgaagagtg gccccttgaa gcccctggaaa gaccaatcac tggacttctt cccttgagag 300
tcagaggtca cccgtgattt tgcctgcacc ttatcattga tctgcagtga tttctgcaaa 360
tcaagagaaa ctctgcaggg cactcccctg ttcc 394

<210> 361
<211> 394
<212> DNA
<213> Homo sapiens

<220>

<221> misc_feature
<222> (1)...(394)
<223> n = A,T,C or G

<400> 361
ctggcggtatgaccggat agcaccgggc atatttntt natggatgag gtctggcacc ctgagcagtc 60
cagcgaggac ttggcttag ttgagaatt tggcttagag gatagtatgc agcacgggtc 120
tgagtctgtg ggatagctgc catgaagtaa cctgaaggag gtgctggctg gttaggggtg 180
attacagggt tggaaacagc tcgtacactt gccattctct gcatatactg gttagtgagg 240
tgagcctggc gctcttctt gctgtgagct aaagctacat acaatggctt tgtggaccc 300
ggccgcgacc acgctaagcc gaattccagc acactggcgg ccgttactag tggatccgag 360
ctcgtacca agcttggcgt aatcatggtc atag 394

<210> 362
<211> 268
<212> DNA
<213> Homo sapiens

<400> 362
ctgcgcgtgg accagtcagc ttccgggtgt gactggagca gggcttgc 60
agtcacttg caggggttgg tgaagctgct cccatccatg tacagctccc agtctactga 120
tggttaagga tggtctcggt ggttagggccc actagaataa actgagtcac ataccttac 180
acagttatgt ttaactgggc tctctgacac cgggaggaag gtggcgggt ttaggtgtt 240
caaacttcaa tggtatgcg gggatgtt 268

<210> 363
<211> 323
<212> DNA
<213> Homo sapiens

<400> 363
ccttgacctt ttcagcaagt gggaaagggtgt aatccgtctc cacagacaag gccaggactc 60
gtttgtaccc gttgatgata gaatgggta ctgatgcaac agttggtag ccaatctgca 120
gacagacact ggcacacattt cggacaccct ccaggaagcg agaatgcaga gtttcctctg 180
tgatatacaag cacttcaggg ttgttagatgc tgccattgtc gaacacctgc tggatgacca 240
gccccaaagga gaagggggag atgttgagca tgttcagcag cgtggcttcg ctggctccca 300
ctttgtctcc agtcttgcata aga 323

<210> 364
<211> 393
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(393)
<223> n = A,T,C or G

<400> 364
ccaagctctc catcgcccc gtgcgcagng gctactgggg gaacaagatc ggcaagcccc 60
acactgtccc ttgcaagggtg acaggccgt gcggctctgt gctgtacgc ctcataactg 120
cacccagggg cactggcatc gtctccgcac ctgtgcctaa gaagctgctc atgatggctg 180
gcatcgatga ctgctacacc tcagccggg gctgcactgc caccctggc aacttcgcca 240
aggccacctt tgatgccatt tctaagacct acagctacct gaccccccac ctctggaagg 300
agactgtatt caccaagtct ccctatcagg agttcactga ccacccctgc aagaccacaca 360

ccagagtctc cgtgcagcgg actcaggctc cag 393
<210> 365
<211> 371
<212> DNA
<213> Homo sapiens

<400> 365
cctcctcaga gcggtagctg ttcttattgc cccggcagcc tccatagatg aagttattgc 60
aggagttcct ctccacgtca aagtaccagc gtgggaagga tgcacggcaa ggcccagtga 120
ctgcgttggc ggtgcagtat tcttcatagt tgaacatatac gctggagtgg tcttcagaat 180
cctgccttct gggagcactt gggacagagg aatccgctgc attccgtctg gtggacctcg 240
gccgcgacca cgctaagccg aattccagca cactggcgcg cgttactagt ggatccgagc 300
tcggtagccaa gcttggcgta atcatggta tagctgttc ctgtgtgaaa ttgttatccg 360
ctcacaattc c 371

<210> 366
<211> 393
<212> DNA
<213> Homo sapiens

<400> 366
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cttcttcagg gatgggttggaggaccatca cactatcccc atccttccaa tcaactgggg 120
tggcaaccct ttttctgtc gtcagtgga gagagatgac taccctgaga atctcatcaa 180
agttcctgccc agtggtagct gggtagagga tagacagctt cagcttctta tcaggaccaa 240
aaacaaacac cacacgagct gccacaggca tgcccttttc atccttctct gctggatcca 300
gcatgccccaa caggatggca agtcccgat tcctatcatc gatgatggaa aaaggtaact 360
tttctgtggg ctcttcacaa ttgtaagcat tga 393

<210> 367
<211> 327
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(327)
<223> n = A,T,C or G

<400> 367
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gcagaacgat gcggcatttgc tccacagtat ttgcgaagat ctgagccctc aggtcctcg 120
tgatcttgaa gtaatggctc cagtctgtc cctgggtcc cttcttctcc aagtgctccc 180
ggatttgtc ctccagcctc cggttctcg tctccaggtt cctcaactctg tccaggtaa 240
aggccaggcg gtcgttcagg ctgttgcattgg tctccctctc gttctggatg cctccatcc 300
ctgccagacc cccggctatac ccgggtgg 327

<210> 368
<211> 306
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature

<222> (1)...(306)

<223> n = A,T,C or G

<400> 368

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acccagatgc gcctgcttcc tctgcgccag aagaaggccc acctgatgga gatccaggtg 120
aacggaggca ctgtggccga gaagctggac tgggcccgcg agaggcttga gcagcaggt 180
cctgtgaacc aagtgtttgg gcaggatgag atgatcgacg tcatacggtt gaccaaggc 240
aaaggctaca aaggggtcac cagtcgttgg cacaccaaga agctgccccg caagaccac 300
cgagga 306

<210> 369

<211> 394

<212> DNA

<213> Homo sapiens

<400> 369

tcgaccacaca ccggaacacag gagagctggg ccagcattgg cacttgataq gatttccgt 60
cggtgccac gaaagtgcgt ttctttgtgt tctcgggttg gaaccgtgat ttccacagac 120
ccttgaataa cactgcgtt acgaggacca gtctggtgag cacaccatca ataagatctg 180
gggacagcag attgtcaatc atatccctgg tttcatttt aaccatgca ttgatgaaat 240
cacaggcaga ggctggatcc tcaaagttca cattccggac ctcacactgg aacacatctt 300
tgttccttgc aacaaaaggc acttcaattt cagaggcatt cttaacaaac acggcgtag 360
ccactgtcac aatgtcttta ttcttcttgg agac 394

<210> 370

<211> 653

<212> DNA

<213> Homo sapiens

<400> 370

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acatcatcaa gtatgagaag cctgggtctc ctcccagaga agtggccctt cggcccccgc 120
ctgggtcac agaggctact attactggcc tggaaaccggg aaccgaatat acaatttatg 180
tcattgcctt gaagaataat cagaagagcg agcccccgtat tggaaaggaaa aagacagacg 240
agcttccccca actggtaacc cttccacacc ccaatcttca tggaccagag atcttggatg 300
ttccttccac agttcaaaag accccttgc tcacccaccc tgggtatgac actggaaatg 360
gtattcagct tcctggcact tctggtcagc aaccctgtgt tggcaacaa atgatctttg 420
aggaacatgg ttttaggcgg accacaccgc ccacaacgcg cacccccata aggcataaggc 480
caagaccata cccgccgaat gttaggacaag aagctcttc tcagacaacc atctcatggg 540
ccccatttca ggacacttct gagtacatca tttcatgtca tcctgttgc actgatgaag 600
aacccttaca gttcagggtt cctggaaactt ctaccagtgc cactctgaca gga 653

<210> 371

<211> 268

<212> DNA

<213> Homo sapiens

<400> 371

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ctcttcctgc cacttcttttgc cacaaggatc caccctggag ggcaccaaga agggccacaa 120
gctccacactg gactacatcg ggccttgcaaa atacatcccc cttgcctgg actctgagct 180
gaccgaattc cccctgcgcgt tgccggactg gctcaagaac gtcctggtca ccctgtatga 240
gagggatgag gacaacaacc ttctgact 268

<210> 372
<211> 392
<212> DNA
<213> Homo sapiens

<400> 372
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ggaactggtc cccctggtcc cgaaggagga aagggtgctg ctggccctcc tgggccacct 120
ggtgctgctg gtactcctgg tctgcaagga atgcctggag aaagaggagg tcttggaaagt 180
cctggtccaa agggtgacaa gggtaacca ggcggtccag gtgctgatgg tgcccaggg 240
aaagatggcc caaggggtcc tactgtcct attggtcctc ctggcccagc tggccagcct 300
ggagataagg gtgaagggtgg tgcccccgga cttccaggtt tagctggacc tcgtggtagc 360
cctggtgaga gaggtgaaac ctcggccgcg ac 392

<210> 373
<211> 388
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(388)
<223> n = A,T,C or G

<400> 373
ccaaggcgctc agatcgccaa ggggcacccan ttttgcattc cccagtgcac agccccacaa 60
ccaggtcagc gatgaaggta tcttcagtct ccccccgaacg atgagacacc atgacgc(ccc 120
aaccattggc ctggggccagc ttgcacgcct gaagagactc ggtcacggag ccaatctgg 180
tgactttgag caggaggcag ttgcaggact tctcggtcac ggccttggcg atcctcttg 240
ggttggtcac tgtgagatca tccccacta cctggattcc tgcactggct gtgaacttct 300
gccaagctcc ccagtcatcc tggtaaaagg gatcttcgtt agacaccact gggtagtcc 360
tgcataagg ctgtacagg tcagccag 388

<210> 374
<211> 393
<212> DNA
<213> Homo sapiens

<400> 374
ctgacgaccg cgtgaaccccc tgcattgggg gtgtcatcct cttccatgag acactctacc 60
agaaggcgga tggatggcgat ccctttcccc aagtttatcaa atccaagggc ggtgttgtgg 120
gcatcaaggt agacaagggc gtggcccccc tggcaggagaa aatggcgag actaccaccc 180
aagggttggaa tggctgtct gagcgtgtg cccagttacaa gaaggacggg gctgacttgc 240
ccaagtggcg ttgtgtgtgt aagatgggg aacacacccc ctcagccctc gccatcatgg 300
aaaatgccaat tttctggcc cggtatgcca gtatctgcca gcagaatggc attgtgcccc 360
tcgtggagcc ttagatcctc cctgtatgggg acc 393

<210> 375
<211> 394
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(394)

<223> n = A,T,C or G

<400> 375

ccacaaaatgg cgtggtccat gtcataccn ttnttctgca gcctccagcc aacagaccc 60
aggaaagagg gcatgaactt gcagactctg cgcttgagat cttaaaca aacatcagcgt 120
tttccagggc ttcccagggc tctgtgcac tagccccgtt ctatcaaag ttattagaga 180
ggatgaagca tttagcttga gcaactacagg aggaatgcac cacggcagct ctccgccaat 240
ttctctcaga ttcccacaga gactgttga atgtttcaa aaccaagtat cacactttaa 300
tgtacatggg ccgcaccata atgagatgtg agcctgtgc atgtggggga ggagggagag 360
agatgtactt tttaaatcat gttcccccta aaca 394

<210> 376

<211> 392

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(392)

<223> n = A,T,C or G

<400> 376

ctgcccagcc cccattggcg agtttattt ggtgtgcagc aatgacaaca agaccttcga 60
ctcttcctgc cacttcttgc ccacaaatgt caccctggag ggcaccaaga agggccacaa 120
gctccacactg gactacatcg ggccttgca atacatcccc ctttgctgg actctgagct 180
gaccgaattt cccctgccc tgcggactg gctcaagaac gtcctggta ccctgtatga 240
gagggatgag gacaacaacc ttctgactga gaagcagaag ctgcccgtg agaagatcca 300
tgagaatgag aagcgcctgg aggccaggaga ccacccctg gagctgctgg cccggactt 360
cgagaagaac tataacatgt acatctccc tg 392

<210> 377

<211> 292

<212> DNA

<213> Homo sapiens

<400> 377

caatgtttga tgcttaaccc ccccaatttc tgttagatgg atggccagtg caagcgtgac 60
ttgaagtgtt gcatgggcat gtgtggaaa tcctgcgtt cccctgtgaa agcttgattt 120
ctgccatatg gaggaggctc tggagtcctg ctctgtgtgg tccaggtcct ttccaccctg 180
agacttggct ccaccactga tatccctcctt tggggaaagg cttggcacac agcaggctt 240
caagaagtgc cagttgatca atgaataat aaacgagctt atttctcttt gc 292

<210> 378

<211> 395

<212> DNA

<213> Homo sapiens

<400> 378

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aataccagca ccagaaccag ccactcctac tggatgcagca cctgcaccaa taaatttggc 120
agcagtatca atgtctctgc tgattgcact ggtctgaaac tccctttggta ttagctgaga 180
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tttcttctgtt attttttaga tcgttttttg tttaa 395

<210> 379
<211> 223
<212> DNA
<213> Homo sapiens

<400> 379
ccagatgaaa tgctgccgca atggctgtgg gaagggtgtcc tgtgtcactc ccaatttctg 60
agctccagcc accaccaggc tgagcagtga ggagagaaag tttctgcctg gccctgcac 120
tggttccagc ccacctgccc tccccctttt cgggactctg tattccctct tgggctgacc 180
acagctctc cctttcccaa ccaataaagt aaccactttc agc 223

<210> 380
<211> 317
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(317)
<223> n = A,T,C or G

<400> 380
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gggtgcagga gaacaaggta gaccagttag gcagaatatg tatcgggat atagaccacg 120
attccgcagg gcccctctc gccaaagaca gcctagagag gacggcaatg aagaagataa 180
agaaaaatcaa ggagatgaga cccaaaggta gcagccacct caacgtcggt accgcccaca 240
cttcaattac cgacgcagac gcccagaaaa cccttaaacca caagatggca aagagacaaa 300
agcagccat ccaccag 317

<210> 381
<211> 392
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(392)
<223> n = A,T,C or G

<400> 381
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caagatctg agtgacatgc gaagccaata tgaggtcatg gccgagcaga accggaagga 180
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ggagcagctc cagatgagca ggtccggaggt tactgacctg cggcgcaccc ttccagggtct 300
tgagattgag ctgcagtcac agacctcgcc cgccgaccacg ctaagccgaa ttccagcaca 360
ctggcggccg ttacttagtgg atccgagctc gg 392

<210> 382
<211> 234
<212> DNA
<213> Homo sapiens

<400> 382

cctcgatgtc taaatgagcg tggtaaagga tggtcctgc tgggtctcg tagataacctc 60
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ccgcgacttc gttcaggtac atgaagagct ccaaggaggt ctggtggtg gtgccatcct 180
tgacgttgtt cacccataca gggaccctt tttgaactc catctccaga atgt 234

<210> 383
<211> 396
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(396)
<223> n = A,T,C or G

<400> 383
ccttgacctt tttagcaagt gggaaagggtgt tttccgtctc cacagacaag gccaggactc 60
gtttgnaccc gtttatgata gaatggggta ctgtatgcaac agttgggtag ccaatctgca 120
gacagacact ggcaaacattt cgacacccca ggatttcaat ggtgcccctg gagatttttag 180
tggtgatacc taaagcctgg aaaaaggagg tcttctcggtt cccgagacca gtgttctggg 240
ctggcacagt gacttcacat ggggcaatgg caccagcacf ggcagcagac ctgcccgggc 300
ggccgctcga aagccgaatt ccagcacact ggccggccgtt actagtggat ccgagctcgg 360
taccaagttt ggcgtaatca tggtcatagc tgtttc 396

<210> 384
<211> 396
<212> DNA
<213> Homo sapiens

<400> 384
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ccttctcagc agcagcctgc tcttctttt caatctcttc aggtatctctg tagaagtaca 180
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tggcaatgtc cacatagcgc agaggagaat ctgtgttaca cagcgcattt gtaggttaggt 360
taacataaga tgccctccgtt agaggctggt ggtcgtt 396

<210> 385
<211> 2943
<212> DNA
<213> Homo sapiens

<400> 385
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<210> 386

<211> 2608

<212> DNA

<213> Homo sapiens

<400> 386

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 ggatgcgtc aaccaactct tccgaaacag cagcatcaag agttatttt ctgactgtca 2100
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 tgcatacctc atccggcttgg caggactctt gggactcatc acatgcctga tctgcgggt 2400
 cctggtgacc acccgccggc ggaagaagga aggagaatac aacgtccagc aacagtggcc 2460
 aggctactac cagtcacacc tagacctgga ggtatctgaa tgactggaaac ttgcccgtgc 2520
 ctggggtgcc tttccccccag ccagggtcca aagaagctt gctggggcag aaataaacc 2580
 tattggtcgg acacaaaaaaaaaaaaaaa 2608

<210> 387
 <211> 1761
 <212> DNA
 <213> Homo sapiens

<400> 387
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 agcctgggtg cacggtagac acggctgcagg gtcatcgac taaggtctgt gaagaacgg 180
 gctgagacac ggggtggactt cctctgcagg taggtgcaga ggaggtccac ggcaccc 240
 ggctggggcc ctactctctg gacaaagaca gcctctaccc taacgttccc aagccagcca 300
 ccacatttctc gcctcctctg tcagaagcca caacagccat ggggtaccac ctgaagaccc 360
 tcacactcaa cttcaccatc tccaaatctcc agtattcacc agatatggc aagggtctac 420
 ctacattcaa ctccaccgag ggggtcttc agcacctgtc cagacccttgc ttccagaaga 480
 gcagcatggg ccccttctac ttgggttgcc aactgatctc cctcaggccct gagaaggatg 540
 gggcagccac tgggtggac accacctgca cctaccaccc tgaccctgtg ggccccggc 600
 tggacataca gcaactttac tgggagctga gtcagctgac ccatgtgtc acccaactgg 660
 gcttctatgt cctggacagg gatagctct tcatcaatgg ctatgcaccc cagaatttat 720
 caatccgggg cgagtaccag ataaatttcc acattgtcaa ctggacccctc agtaatccag 780

accccacatc ctcagagtac atcacctgc tgagggacat ccaggacaag gtcaccacac 840
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 tcaaccaact ctccgaaac agcagcatca agagttattt ttctgactgt caagtttcaa 1260
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 ccacccgccc gcggaagaag gaaggagaat acaacgtcca gcaacagtgc ccaggctact 1620
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 ggacacaaaa aaaaaaaaaa a 1761

<210> 388

<211> 772

<212> PRT

<213> Homo sapiens

<400> 388

Met	Ser	Met	Val	Ser	His	Ser	Gly	Ala	Leu	Cys	Pro	Pro	Leu	Ala	Phe
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Leu	Gly	Pro	Pro	Gln	Trp	Thr	Trp	Glu	His	Leu	Gly	Leu	Gln	Phe	Leu
								20				25			30

Asn	Leu	Val	Pro	Arg	Leu	Pro	Ala	Leu	Ser	Trp	Cys	Tyr	Ser	Leu	Ser
								35				40			45

Thr	Ser	Pro	Ser	Pro	Thr	Cys	Gly	Met	Arg	Arg	Thr	Cys	Ser	Thr	Leu
								50				55			60

Ala	Pro	Gly	Ser	Ser	Thr	Pro	Arg	Arg	Gly	Ser	Phe	Arg	Ala	Trp	Ser
								65				70			80

Leu	Phe	Lys	Ser	Thr	Ser	Val	Gly	Pro	Leu	Tyr	Ser	Gly	Cys	Arg	Leu
								85				90			95

Thr	Leu	Leu	Arg	Pro	Glu	Lys	Asp	Gly	Thr	Ala	Thr	Gly	Val	Asp	Ala
								100				105			110

Ile	Cys	Thr	His	His	Pro	Asp	Pro	Lys	Ser	Pro	Arg	Leu	Asp	Arg	Glu
								115				120			125

Gln	Leu	Tyr	Trp	Glu	Leu	Ser	Gln	Leu	Thr	His	Asn	Ile	Thr	Glu	Leu
								130				135			140

Gly	Pro	Tyr	Ala	Leu	Asp	Asn	Asp	Ser	Leu	Phe	Val	Asn	Gly	Phe	Thr
								145				150			160

His	Arg	Ser	Ser	Val	Ser	Thr	Thr	Ser	Thr	Pro	Gly	Thr	Pro	Thr	Val
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

	165	170	175
Tyr Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala			
180	185	190	
Ala Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn			
195	200	205	
Leu Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr			
210	215	220	
Thr Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr			
225	230	235	240
Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro			
245	250	255	
Glu Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg			
260	265	270	
Pro Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu			
275	280	285	
Leu Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu			
290	295	300	
Asp Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val			
305	310	315	320
Pro Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn			
325	330	335	
Phe Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly			
340	345	350	
Ser Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser			
355	360	365	
Pro Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg			
370	375	380	
Val Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp			
385	390	395	400
Leu Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile			
405	410	415	
Lys Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg			
420	425	430	
Leu Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr			
435	440	445	
Asn Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr			
450	455	460	

Thr Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His
465 470 475 480

Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser
485 490 495

Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val
500 505 510

Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro
515 520 525

Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly
530 535 540

Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val
545 550 555 560

Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu
565 570 575

Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser
580 585 590

Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu
595 600 605

Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp
610 615 620

Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys
625 630 635 640

Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe
645 650 655

Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys
660 665 670

Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe
675 680 685

Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr
690 695 700

Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln
705 710 715 720

Pro Thr Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile
725 730 735

Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn
740 745 750

Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Ala Pro His Arg Gly
755 760 765

Gly Leu Pro Val
770

<210> 389
<211> 833
<212> PRT
<213> Homo sapiens

<400> 389
Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr
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Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala Ile
20 25 30

Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu Gln
35 40 45

Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu Gly
50 55 60

Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr His
65 70 75 80

Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val Tyr
85 90 95

Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala Ala
100 105 110

Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn Leu
115 120 125

Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr Thr
130 135 140

Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr Ser
145 150 155 160

Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro Glu
165 170 175

Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg Pro
180 185 190

Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu Leu
195 200 205

Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu Asp
210 215 220

Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val Pro
225 230 235 240

Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn Phe
245 250 255

Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly Ser
260 265 270

Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser Pro
275 280 285

Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg Val
290 295 300

Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp Leu
305 310 315 320

Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile Lys
325 330 335

Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg Leu
340 345 350

Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr Asn
355 360 365

Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr Thr
370 375 380

Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His Leu
385 390 395 400

Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser Pro
405 410 415

Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val Leu
420 425 430

Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro Phe
435 440 445

Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly Ala
450 455 460

Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val Gly
465 470 475 480

Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr
485 490 495

His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser Leu
500 505 510

Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu Tyr

515 520 525
Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp Pro
530 535 540
Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys Val
545 550 555 560
Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe Cys
565 570 575
Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys Ala
580 585 590
Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe Leu
595 600 605
Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr Gln
610 615 620
Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln Pro
625 630 635 640
Thr Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile Thr
645 650 655
Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn Tyr
660 665 670
Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln Leu Phe Arg
675 680 685
Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val Ser Thr Phe
690 695 700
Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser Leu Cys Asn
705 710 715 720
Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile Tyr Glu Glu
725 730 735
Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn Phe Thr Leu
740 745 750
Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe Pro Asn Arg Asn Glu
755 760 765
Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp Ala Val Ile Leu Ile
770 775 780
Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys Leu Ile Cys Gly Val
785 790 795 800
Leu Val Thr Thr Arg Arg Lys Lys Glu Gly Glu Tyr Asn Val Gln
805 810 815

Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu Asp Leu Glu Asp Leu
820 825 830

Gln

<210> 390

<211> 438

<212> PRT

<213> Homo sapiens

<400> 390

Met Gly Tyr His Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn
5 10 15

Leu Gln Tyr Ser Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser
20 25 30

Thr Glu Gly Val Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser
35 40 45

Ser Met Gly Pro Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro
50 55 60

Glu Lys Asp Gly Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His
65 70 75 80

Pro Asp Pro Val Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu
85 90 95

Leu Ser Gln Leu Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu
100 105 110

Asp Arg Asp Ser Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser
115 120 125

Ile Arg Gly Glu Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu
130 135 140

Ser Asn Pro Asp Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp
145 150 155 160

Ile Gln Asp Lys Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp
165 170 175

Thr Phe Arg Phe Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu
180 185 190

Val Thr Val Lys Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val
195 200 205

Glu Gln Val Phe Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu
210 215 220

Gly Ser Thr Tyr Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser
225 230 235 240

Ser Val Tyr Gln Pro Thr Ser Ser Ser Thr Gln His Phe Tyr Leu
245 250 255

Asn Phe Thr Ile Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro
260 265 270

Gly Thr Thr Asn Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu
275 280 285

Asn Gln Leu Phe Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys
290 295 300

Gln Val Ser Thr Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val
305 310 315 320

Asp Ser Leu Cys Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val
325 330 335

Ala Ile Tyr Glu Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu
340 345 350

Gln Asn Phe Thr Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe
355 360 365

Pro Asn Arg Asn Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp
370 375 380

Ala Val Ile Leu Ile Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys
385 390 395 400

Leu Ile Cys Gly Val Leu Val Thr Thr Arg Arg Arg Lys Lys Glu Gly
405 410 415

Glu Tyr Asn Val Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu
420 425 430

Asp Leu Glu Asp Leu Gln
435

<210> 391

<211> 2627

<212> DNA

<213> Homo sapiens

<400> 391

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tagcatcatc attattctgg ctggagaat tgcactcatc attggctttg gtatccagg 180
gagacactcc atcacagtca ctactgtcgc ctcagctggg aacatgggg aggatggaaat 240
cctgagctgc actttgaac ctgacatcaa actttctgat atcgtgatac aatggctgaa 300
ggaagggtttt ttaggcttgg tccatgagtt caaagaaggc aaagatgagc tgccggagca 360

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 gttccccag cccacagtgg tctggcattt ccaagttgac cagggagcca acttctcgga 660
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 gagcttctaa gttctttcc cttcatctca ccctgcaagc caagttctgt aagagaaatg 2280
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 tcaagagaat gattaaatat acatttccta caccaaaaaa aaaaaaaa 2627

<210> 392

<211> 310

<212> PRT

<213> Homo sapiens

<400> 392

His	Ala	Ser	Ala	His	Ala	Ser	Gly	Arg	Gln	Arg	Gln	Leu	His	Ser	Ala
5															

Ser	Thr	Gln	Ile	Arg	Trp	Glu	Pro	Ser	Pro	Ala	Met	Ala	Ser	Leu	Gly
20															

Gln	Ile	Leu	Phe	Trp	Ser	Ile	Ile	Ser	Ile	Ile	Ile	Leu	Ala	Gly
35														

Ala	Ile	Ala	Leu	Ile	Ile	Gly	Phe	Gly	Ile	Ser	Gly	Arg	His	Ser	Ile
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

50 55 60
Thr Val Thr Val Ala Ser Ala Gly Asn Ile Gly Glu Asp Gly Ile
65 70 75 80
Leu Ser Cys Thr Phe Glu Pro Asp Ile Lys Leu Ser Asp Ile Val Ile
85 90 95
Gln Trp Leu Lys Glu Gly Val Leu Gly Leu Val His Glu Phe Lys Glu
100 105 110
Gly Lys Asp Glu Leu Ser Glu Gln Asp Glu Met Phe Arg Gly Arg Thr
115 120 125
Ala Val Phe Ala Asp Gln Val Ile Val Gly Asn Ala Ser Leu Arg Leu
130 135 140
Lys Asn Val Gln Leu Thr Asp Ala Gly Thr Tyr Lys Cys Tyr Ile Ile
145 150 155 160
Thr Ser Lys Gly Lys Gly Asn Ala Asn Leu Glu Tyr Lys Thr Gly Ala
165 170 175
Phe Ser Met Pro Glu Val Asn Val Asp Tyr Asn Ala Ser Ser Glu Thr
180 185 190
Leu Arg Cys Glu Ala Pro Arg Trp Phe Pro Gln Pro Thr Val Val Trp
195 200 205
Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser Glu Val Ser Asn Thr
210 215 220
Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met Lys Val Val Ser Val
225 230 235 240
Leu Tyr Asn Val Thr Ile Asn Asn Thr Tyr Ser Cys Met Ile Glu Asn
245 250 255
Asp Ile Ala Lys Ala Thr Gly Asp Ile Lys Val Thr Glu Ser Glu Ile
260 265 270
Lys Arg Arg Ser His Leu Gln Leu Leu Asn Ser Lys Ala Ser Leu Cys
275 280 285
Val Ser Ser Phe Phe Ala Ile Ser Trp Ala Leu Leu Pro Leu Ser Pro
290 295 300
Tyr Leu Met Leu Lys
305

<210> 393
<211> 283
<212> PRT
<213> Homo sapiens

<400> 393

Met Ala Ser Leu Gly Gln Ile Leu Phe Trp Ser Ile Ile Ser Ile Ile
5 10 15

Ile Ile Leu Ala Gly Ala Ile Ala Leu Ile Ile Gly Phe Gly Ile Ser
20 25 30

Gly Arg His Ser Ile Thr Val Thr Val Ala Ser Ala Gly Asn Ile
35 40 45

Gly Glu Asp Gly Ile Leu Ser Cys Thr Phe Glu Pro Asp Ile Lys Leu
50 55 60

Ser Asp Ile Val Ile Gln Trp Leu Lys Glu Gly Val Leu Gly Leu Val
65 70 75 80

His Glu Phe Lys Glu Gly Lys Asp Glu Leu Ser Glu Gln Asp Glu Met
85 90 95

Phe Arg Gly Arg Thr Ala Val Phe Ala Asp Gln Val Ile Val Gly Asn
100 105 110

Ala Ser Leu Arg Leu Lys Asn Val Gln Leu Thr Asp Ala Gly Thr Tyr
115 120 125

Lys Cys Tyr Ile Ile Thr Ser Lys Gly Lys Gly Asn Ala Asn Leu Glu
130 135 140

Tyr Lys Thr Gly Ala Phe Ser Met Pro Glu Val Asn Val Asp Tyr Asn
145 150 155 160

Ala Ser Ser Glu Thr Leu Arg Cys Glu Ala Pro Arg Trp Phe Pro Gln
165 170 175

Pro Thr Val Val Trp Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser
180 185 190

Glu Val Ser Asn Thr Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met
195 200 205

Lys Val Val Ser Val Leu Tyr Asn Val Thr Ile Asn Asn Thr Tyr Ser
210 215 220

Cys Met Ile Glu Asn Asp Ile Ala Lys Ala Thr Gly Asp Ile Lys Val
225 230 235 240

Thr Glu Ser Glu Ile Lys Arg Arg Ser His Leu Gln Leu Leu Asn Ser
245 250 255

Lys Ala Ser Leu Cys Val Ser Ser Phe Phe Ala Ile Ser Trp Ala Leu
260 265 270

Leu Pro Leu Ser Pro Tyr Leu Met Leu Lys
275 280

11729.1 contg

TTAGAGAGGCACACAACGAAGAAGAGTTAAAAGCAGCAAAGCCGGGTTTTTGTTTGT
 TTGTTTGTGTTGAGATGGAGTCTCACTCTGTTGCCAAGCTGGAGTACAACGGCA
 TGATCTCAGCTCGCTGCAACCTCCGCCCTCCACGTTCAAGTGATTCTCCTGCCCTCAGCCTCC
 CAAGTAGCTGCGATTACAGGGGCCCGCCACCACGCTCAGCTAACTTGTATTTTAGT
 AGAGACAGGGTTTCAACAGGTTGCCAGGCTGCTTGAACTCCTGACCTCAGGTGATCCA
 CCCGCCCTCGGCCTCCAAAGTGCTGGGATTACAGGGCTGAGCCACCACGCCGGCCCCAA
 AGCTGTTCTTGTCTTAGCGTAAAGCTCTGCCATGCAGTATCTACATAACTGACGT
 GACTGCCAGCAAGCTCAGTCACTCCGTGGTC

11729-45.21.21.cons1

TAGGATGTGTTGGACCCCTGTGTCAAAAAAACCTCACAAAGAAATCCCCTGCTCATTACA
 GAAGAAGATGCATTTAAAATATGGGTTATTTCAACTTTTATCTGAGGACAAGTATCCAT
 TAATTATTGTGTCAGAACAGAGATTGAATACCTGCTTAAGAACGTTACAGAACGCTATGGGAG
 GAGGTTGGCAGCAAGAACAAATTGAACATTATAAAATCAACTTGATGACAGTAAAAATG
 GCCTTCTGCATGGAACTTATGAGCTTATGGAAATGGACAGTTAGCAAAGGCATGGA
 CCGGCAGACTGTGTCATGGCAATTAAATGAAGTCTTAATGAACCTTATATTAGATGTGTTA
 AAGCAGGGTTACATGATGAAAAGGCCAACAGACGGAAAACCTGACTGAAAGATGGTT
 TGTACTAAAACCCAACATAATTCTTACTATGTGAGTGAGGATCTGAAGGATAAGAAAGG
 AGACATTCTTGGATGAAAATTGCTGTCAGACTCCTGCCATGACAAGATGGAAA

11729-45.21.21.cons2

TTAGAGAGGCACACAACGAAGAAGACTAAAAGCAGCAAAGCCGGGTTTTTGTTTGT
 TTGTTTGTGTTGAGATGGAGTCTCACTCTGTTGCCAAGCTGGAGTACAACGGCA
 TGATCTCAGCTCGCTGCAACCTCCGCCCTCCACGTTCAACTGATTCTCCTGCCCTCAGCCTCC
 CAAGTAGCTGGGATTACAGGGGCCCGCCACCACGCTCAGCTAACTTGTATTTTAGT
 AGAGACAGGGTTTCAACAGGTTGCCAGGCTGCTTGAACTCCTGACCTCAGGTGATCCA
 CCCGCCCTCGGCCTCCAAAGTGCTGGGATTACAGGGCTGAGCCACCACGCCGGCCCCAA
 AGCTGTTCTTGTCTTAGCGTAAAGCTCTGCCATGCAGTATCTACATAACTGACGT
 GACTGCCAGCAAGCTCAGTCACTCCGTGGTC

11731.1contig

TCTTTTCTTCGATTTCTCAATTGTCACGTTGATTTATGAAGTTGTCAGGGCTAA
 CTGCTCTGATTTAGCTTCTGACTTCTTCAAGCTGATGTTAAATGAATCCATTCTG
 AGAGCTTAGATGCAGTTCTTCAACACCATCTAATTGTTCTTAAAGTCTTGGCATAAT
 TCTTCTTCTGATGACTTCTGACTAACTGATCCCTGAACTCAGGTGTTACTGAG
 CTGCATGTTTAATTCTTCGTTAATAGCTGCTTCTCAGGGACCAAGATAGATAAGCTTAT
 TTGATATTCTTAAGCTCTTGTGAAAGTTGTCATTCATAATTCCAGGTACACACTGT
 TTATCCAAAACCTCTAGCTCAGTCATTGTGTTGCTTCTGATTGGACATCTTGTAGTCTG
 CCTGAGATCTGCTGATGKTTTCACTCTCCAGTTCCAGGTGGAGACTTTXCTTCT
 GGAGCTCAGCCTGACAAATGCCCTTGTCCCT

11731.2contig

AGCCAGATGGCTGAGAGCTCCAAGAAGAAAGTCAGGAATCATGATGGCTCAGTTCCCACAG
 CGATGAATGGAGGGCCAATAATGTGGCTATTACATCTGAAGAACGTAAGCATGATA
 AACAGTTGATAACCTCAAACCTTCAGGAGGTTACATAACAGGTGATCAAGCCCCGTACTTT
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 AACAAAGGATGGGAAGATGGACCAGCAAGAGTTCTCTATAGCTATGAAACTCATCAAGTTA
 AAGTTGCAGGGCCAACAGCTCCCTGTAGTCCTCCCTCATGAAACAAACCCCCCTAATGT
 TCTCTCCACTAATCTCTGCTCGTTGGATGGGAAGCATGCCAATCTGTCCATTATCAG
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 TCCTCCCTTAATGATGCCTGCTCCCTAGTGCCTTCTGTTAGTA

11734.1contig

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 CACTGAAGCCACCACTGGTGTGGCACTGCCACTCTCTGGCTTGGCTTACTGGTACTGGC
 ACCAGTGTGGCACTGCCACTCTCTGGCTTGGCTTACTGGTACTGGTACTGGC
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 CGAGGCCGACCCAAATGCCATTGAGCTTAATCTGGCCCTAGCCTTGCCTCAGCTGCA
 GCCTCAGCTGCAGCCTTCAAAATCCGCTTCCATGCCCTCTCGCTAC

11734.2contig

GCCAAGAAACCCCGAAACGTGAAGCACTGGATGGGAAGAGGATGGCAGCAGTGTCA
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 GGCCCCCAGGGCTTCAAGGGCTTCCATAGCTTTGGGCCCGCAGGGCATCAAGGACTCG
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 AAGCCTGCCGTAGAGCTGCCAAGCTCAGTCACTCCAAAGAGCCTGAAGCACCACCT
 CGGGATGTGGCCCTTGGCAAGGGAGGGAAATGATTTGGTAAGTACCTTGGCTAAAG
 ACCAGACCAAGATTCCCATCAAGGCTGGACATGCTGAAGGACATCAAAAGAATACA
 CTGATGTGTACCCCCGAAATCATGAAACGAGCTTTCCTGGAGAAGGTATTGGGAT
 TCAATTGAAGGAAATTGATAAGAAATGACCAACTTGTACATTCTCTCGCTAC

11736.1contig

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 TTGGTCTCAAAGTGTCTGGATCAAGGCCTGAGCCACCTCACCCAGCCACCAATTTCA
 ATCAGGAAGACTTTCTCTTCAAGAAAGTGAAGGGTTCCAGAGTATAGCTACACTATT
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 TGATAAAATTACTTGTCCATCTTGTACATTGAGAAATCACAAAA

11736.2 contig

AAGCGGAAATGAGAAACGGAGGGAAAATCATGTGGTATTGAGCGGAAAACCTGCTGGATGA
 CAGGGCTCAGTCCTGTTGGAGAACTCTGGGTGGTGTAGAACAGGGCCACTCACAGTG
 GGGTGCACAGACCAGCACGGCTCTGTGACCTGTTACAGGTCCATGATGAGGTAAAC
 AATAACACTGAGTATAAGGGTTGGTTAGAAAACCTTACAGCAATTGACAAGTAATCTTC
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 GTTCTGAGTTACCTATTTTATTGCATTTACAAAAGCATCCTTCCATGAAGGACCGGAAGT
 TAAAAACAAAGCAGGTCTTTATCACAGCACTGCGTAGAACACAGTTAGAGTTATCCAC
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 CTTGAGTGGATTGTTAATCCCATCATTACCGCTGGAXGTG

11739-1&2

CCGCGGCTCCTGTCCAGACCCCTGACCCCTCCCAAGGCTCAACCGTCCCCAACAAACCG
 CCAGCCTTGTACTGATGTCGGCTGCGAGAGCCTGTGCTTAAGTAAGAACATCAGGCCTTATTG
 GAGACATTCAAGCAAGGTGGACAACCTACTTTCCAGAACAGAAAGGAAACCTCATGCAT
 CAGAAAAGGTGACTAATAAAGGTACCAAGAACAGAAATATGGCTGCACAAATACCAGAACCTGA
 TCAGATAAAACAGTTAACGAATTCTGGGGACCTACAATAAACCTACAGAGACCTGCTT
 TTGGACTGTGTTAGAGACTTCACAACAAAGAGAACGTAAGAGAACCTGTTCA
 GAACATTGCTTACAGAAATAATTAAAGAACACAAAGAACATTCATGAGATTTCAGGAA
 TATCATATTCAAGCAGAACATGAAAGCCCTGCCAGCCAAAGCAGGACTCCTGGCCAACCACGA
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 TTCAGCAGCTTGGTCACTGATTAGAAAAAATAAACCAATTGTTCTCAATTGTGACTGTTA
 ATTAAAGCAACTTATGTTGGATCATGTATGAGATAGAAAAATTATTACTCAAAG
 TAAAATAAATGGA

11740.1 contig

GAAAAAAATATAAAACACACATTGCGAAAACGGTGGCCCTAAAAGAGGAAAAGAACATT
 CACCAATATAATCCAAATTATGAAACACTGACAAATTAAATCCAAGAACATCAGTTTGAA
 TGAAGCTAGCAAGTGTGATGATATGATAAAATAAACGTGGAGCAAATAAAAACACAAGACTT
 GGCATAAGATATATCCACTTTTGATATTAAACTTGCAACCATTTCTGACAAATTGTG
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 GTAACAGAAAAAGAAAAACACATTGCAATTGAGATGAAACAAAGAACACACAAAAACAA
 AACGAACAAAGTGTGATGCTAAATTCTACCTCTGAAATAAACCTTGAACATCTCCTACAA
 GGCAACCGTGATTGTTGTAATTCTAACCTGAAAGAAAATGTGATGACTTTGCGACATGAA
 TCAGATGAGAAAACCTGCGTCTTCCAAAGCCTGAACTCCCCCTGAAAACCTTTGCA

11766.1.contig

CTGGGATCA~~T~~~~T~~CTCTTGATGTCA~~A~~~~A~~AGACTCTTCTTCTTCATCCTCTTCTCAT
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 GATGCTTCTGT~~T~~CTCCTACCATAACTGAAGA~~A~~TTTCGCTGGAAGTCGTTGACTGGCTGT
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 AGCATCTTCATCTGGATGT~~T~~ATTTCA~~A~~AGGGCTCACTGAGGAAACTTCTGATTCA~~G~~AG
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 GCTCTCAGGCAACCCATTGTTGTCA~~T~~GGGGGCTGACAAAGAAACCTTGGTCGATTAAGT
 GGCCTGGGTGTCCCAGGCCATTATAGACTCTCAGTATAGCTTGGTGAATTCCAG
 GAAACATAAACACCATTGATTTAAACTATTGGAATTGGTTT

11766.2.contig

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 AGGGGGAGGGCGTCGGGGGGTGGGGGAGGCCTTCCGGTCCCCAAGAGACCCGCGGAG
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 GCTGA~~A~~AGATTGAGAAGAGGGAA~~A~~AGGAAGTTGCTCTGTCTGGATCAGTTCT
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 CTCCCAACCCTAATGTCGA

11773.2.contig

AAGCAGGGGGCTCCCCCGCTCGCAGGGGGTGCCACCTGCCGCCGCCGCTCGCTCGCT
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 GCCGXTGCC

11775-1&2

ATCTCTTGTATGCCAAATA~~T~~AAATATAAAATCTTGA~~A~~ACAAGTT~~C~~AGATGAA~~A~~ATAAAAAT
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 ACTATT~~T~~TTTATTTCTATGCA~~AA~~ACTGATGCTTCAA~~A~~CTGCTTAA~~A~~ATGATATGATATG
 ATACACAAACCA~~G~~T~~T~~CA~~A~~ATGTA~~A~~AGCCAGTCATCTGCAATTGTAAGAA~~A~~ATAGGTA
 AAAGA~~A~~TATAAGACACCTTACACACACACACACACACACACACG~~T~~GTGCCAGGCCAATGAC
 AAAAACAATTGGCCCTCTCTAA~~A~~AGAACATGAAGACCC~~T~~TAATTGCTGCCAGGAG
 GGAACACTGTGTCA~~CCC~~CTCC~~T~~ACAA~~A~~TCAGCTAGTTCTTAA~~A~~TC~~A~~ATGCCAAATCT
 GGGCATATTGAGAGGAGTGA~~T~~CTGACAGCCACGTGAA~~A~~ATCCTGTGGGAACCATT~~C~~
 GTCCACCCACTGGTGCCTGAA~~A~~ATGCCAA~~A~~TAATT~~T~~CCCTCC~~A~~CTTCTGCTGCTG~~C~~
 TCTTCCACATCCTCACATAGACCC~~C~~AGACCC~~C~~GTGGCCCTGGCTGGGATCGCATTGCTG
 GTAGACCAAGTCATAGGTCTG~~T~~TTGACGTACAGAAGCGATA~~C~~ACCAAAATTGCC~~T~~GCT
 CGGTCA~~T~~GTCA~~A~~ACCAGAGA

11777.1&2.cons

CAGACGGGGTTCACTATGTTGCCTAGGCTGGCTTGAACTCCTGACTTCAGGTGATCTGC
 CTGCCTTGCCCTCCCAAAGTGCTGGATTACAGGCATAAGCCACTGCGCCCGGCTGATCTG
 ATGGTTTCATAAGGCTTTCCCCCTTTGCTCAGCACCTCTCCTTCTGCGCCATGTGAAG
 AAGGACATGTTGCTTCCCCCTCCACCACGATTGTAAGTTGTTCTGAGGCCTCCCCGGCC
 ATGCTGAACCTGTGAGTCAATTAAACCTTTCTTATAAATTATCCAGTTGGGTATGTC
 TTATTAGTAGAATGAGAACAGACTAAACACCCCTAAAGGAGACTGACGGAGAGGATT
 CTCCTGGATCCCAAGCACTTCCTGAAATGCTACTGACATTCTTCTGAGGACTTAAACTG
 GGAGATAGAAAACAGATTCCATGGCTCAGCAGCCTGAGAGCAGGGAGGGAGCCAAGCTA
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 CCACCCCCACCAGGGCCAAGTCTGTCTTGGAGAGCCAAGCCTCAATCACTGCTAGCCTCA
 AGTGTCCCCAAGCCACAGTGGCTAGGGGACTCAGGGAACAGTTCCAGTCTGCCCTACTT
 CTCTTACCTTACCCCTCATACCTCAAAGTAGACCATGTTATGAGGTCCAAGG

11779.2.contig

AAGCGAGGAAGCCACTGCAGCTCCTGGCTGAAAAGCGCCGCCAGCCTGGGAACAGAGG
 GAACCGGAAGAACAGGAGCGGAAGCTGCAAGGCTGAAAGGGACAAGCGAAATGCGAGAGG
 AGCAGCTGGCCCGGGAGGCTGAAGCCGGGCTGAACGTGAGGCCGAGGCCGGAGACGG
 GAGGAGCAGGAGGCTCGAGAGAACGGCCAGGCTGAGCAGGAGGAGCAGGAGGCCACTGCA
 GAAGCAGAACAGGAAAGCCGAAGCCCGTCCCCGGGAAGAACGCTGAGGCCAGGCCAGG
 AGCAGGAAAGGAAACGACTTTCAAGAAGGAGGAACAGGAGAGACAAGAGCGAAAGAACGCGGCTG
 GAGGAGATAATGAAGAGGACTCGGAAATCACAAGCCGCCAACCAAGAACGAGGATGCC
 AAAGGAGACCCAGCTAACAAATTCCCCCCCAGACCTTGTGAAAGCTGTAGAGACTCGGC
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11781 & 37.cons

CTCTGTGGAAAACGTGAGGAAATCAATTACCAATTACCCATGTTCTCATCCCCAAGCAAA
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 AGCAGGGCTCATCACACTGGGTGCTGATTCAACTCACCCCCACACAGACCCGTTCTCTC
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 CAAT

11781-76-87-37

CTCTGTGAAAAACTGATGAGGAATGAATTACCATACCCATGTTCTCATCCCCAAGCAAA
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 GTGAGGGACAGCTTACTCCATTGACAGATTGTTGGCTAACACATCCCGAAGAATGATT
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 CAATTAA

11784-1 & 2

GGACGACAAGGCCATGGGATATGGGATCCGAATTCAACCCCTTGGAAATTAAATAAACCT
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 CACTAAACAGATGTTCCAGCTTCTGACATGCAAGGATCTACTTTAATTCCACACT
 CTCAATTAAATAATTGAATAAAAGGGAAATTGTTGGCACCTGATATAATCTGCCAGGCTATG
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 TATTAAATAAAATGAACATTATC

11785.1.contig

GGCACTGACATTACCAATCAATGGGAAACCAACCTTCCCTTTCTTCAGGATTCTCTGAGTGG
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 CCTTGGCCATTAGGGTTCTCTCTTCTCTTATTAAACCACT

11718-1&2 cons

TGCGCTGAAAACAACGGCCTCTTACTGTTAAAATGCAGCCACAGGTGCTTAGCCGTGGG
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 GTCCAGCCTCTGTCCCTCTGCCTTCGTTCTCGACAGTGTCCCAGCATCCCTGGTCACTTG
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 CGCAGCCTCATGTTGTGTCGGAGGCTGCTCACGGCCTCTCTTCCTCGCGAGGGCTGT
 CTTCACCCCTCCGGXGCACCTCTCCAGCTCAGCTGCTGGCGGCCCTGCAGCGTGGCCAGC
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13690.4

CAACTTATTACTTGAAATTATAATAACCCCTGTCCCTTGTGTTTCCAGGCTGTGATATAT
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13693.1

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13694.1

CAGAGAACTKGAGAAAGATGTCGGCTTTTCTTTAAATGAATGAGAGAAGCCCATTGTATC
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13694.2

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 GCATCCACATCAGACAGCCTGGTATAACCAGAGTTGGTGGTACTGATTGAGCTGCTTT
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13695.1

GAAATGTATAATTAAATCATTCTCTTGAACGATCAGAACTCTRAAAATCAGTTTCTATAACAR
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 GTTGTGCTCTTAAATTGAATTGTGCCAGGAAGGGTCTGGAGATCTAAATTCAAGAGTAAG
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 GCCTTGCAACTCTGTTCACTGAGAGATGTTATCCTG

13695.2

AGTCTGGAGTGACCAAACAACAGCAACAAACAARRAGAACCCAAAAACGAGAAGGCTCCA
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 GACGCTGCTAATTGACTGCCACTTGCACACTCAGGGGGGGCTGCATTITAGTAATGGGTCA
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13697.1

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13697.2

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 GCTTGAGAGATACTACCTGAGACTGGGTAAATTATAAAACAAAAGAGATTTAATTGACTCAC
 AGTTCTGCATGGCTGAAGAGGCCCTCAGGAAACTTACAGTCATGGTGGAAAGGCAAAGGAGG
 AGCAAGGCATGTCCTACATCTCAGTAGGAGAGAGGCGAGAGCAGGAGAACCTGCCACTT
 ATAAACCATTCACTACATCTCATAACTCCCTATCATGAGAAAACATGGAGGAACCACCTC
 ATGATCCAATCACCTCCCAGGCTCCCTCGACACGTGGGGATTATAATTCACTGAGGATT
 AGAGGGACACAGAGACAAACCATATCATCATTCACTGAGAAATCCACCTCATAGTCCAAT
 CAGCTCCCTACCAAGGCCCCACCTCAACACTGGGGATTGCAATTCAACATGAGATTGGATG
 GGGACACAGATTCAAACCATATCATAC

13699.1&2

CATGGCCTTCTCCTTAGAGGCCAGAGGTGCTGCCCTGGCTGGAGTGAAGCTCCAGGCAC
 TACCAGCTTCTCTGATTTCCCGTTGGTCCATGTGAAGAGCTACCACGAGCCCCAGCCTCA
 CAGTGTCCACTCAAGGGCAGCTTGGTCTCTGTGCTGAGAGGCAGGCTGGTGTGACCC
 GGGAACTTGACCCGGAAACAACAGTGGCCCAGAGTGTAGTGTGGCTGGCCCTCAACCT
 AGTGTCCGTCCTCCTCTCTGGAGCCAGTCTGAGTTAAAGGCATTAAGTGTAGATA
 CAAGCTCCTGTGGCTGGAAAACACCCCTCTGCTGATAAAGCTCAGGGGGACTGAGGA
 AGCAGAGGGCCCTTGGGGTGCCTCTGAAGAGAGCGTCAGGCCATCAGCTCTGTCCCTC
 TGGTGTCTCCACGTCCTGTTCTCACCCCTCATCTCTGGGAGCAGCTGCACCTGACTGGCAC
 GCGGGGGCAGTGGAGGCACAGGCTCAGGCTGGCCGGCTACCTGGCACCCCTATGGCTTAC
 AAAGTACAGCTTGGCCCAAGTTCTTCAACCTGAGGGGAGCACTGACTCCTAACAGTCTT
 CCTTGCCTGCCATCATCTGGGTGGCTGGCTGTAAGAAAGGCCGGCATGCTTCTAA
 CACAGCCACAGGAGGCTTGAGGGCATCTTCAAGCTGGGGAAACAGTCTTAGATAAGTA
 GGTGACTTGCCTAAGGCCTCCAGCACCTTGTCTGAGTCTTGGAGTCTCACAGCAGACTGCATGT
 SAACAACCTGCAACCGAAAACATCCCTCACTATAAA

13703.3

CCAGAACCTCCTCTCTTGGACAATGGGGAGCCCTTGGAGACACAGAGGGTTTACCT
 TGGATGACCTCTAGAGAAATTGCCAAGAACGCCACCTTCTGGTCCCACCTGCAGACCC
 ACAGCACTCACTTGGTCAAGGCCCTCTGTAAGAAGGTCACTTGGCTCCATTGCCTGCTTCCA
 ACCAAATGGGCAGGAGAGAACGCCCTTATTCTGCCACCCATTCTCTGTACCAAGCACCT
 CGTTTCACTCAGYGTGTCAACCAACGGTACCGTTACACAGTC.

13705.1

TGCATGTACTTTATTTATGTGTTTSGTCTGGAAAACCAAGTGTCCCAGCAGCATGACTGA
 ACATCACTCACTTCCCTACTTGTATCTACAAAGGCCAACGCCAGAGGCCAGACCAGGATT
 CAAACACACTGCCACGGAGAATTGTGGATCCGCTGTCAGGTAAGTGTCCGTCACTGACCCA
 RACGCTGTTACGTGGCACATGACTGTACAGTGCCACGTAACAGCACTGACTTTCTCCCA
 TGAACAGTTACCTGCCATGTATCTACATGATTCAAGAACATTGAAACAGTTAATTCTGACA
 CTTGAATAATCCCACATCAAAACCGTAAATCACTTGTATGTTCTAACGACAACATAGCAT
 CACTTACGGACAGAATCATCTGGAAAAACAGAACACGAATACATACATCTTAAAAATG
 CTGGGGTGGGCCAGGCACAGCTCACGCCCTGTAACTCCAGCACTTGGGAGGCTTAAGCG
 GGTG

13705.2

TGGGGCGGAAAGAACCAAGGCCAAGGAGCTGTCGGCAGCTGCAGCTGGAGGCCGAG
 GAGCAGAGGAAGCAGAAGAAGCGGCAGACTGTCTGGATGCAGACGGTGTGATTCTCC
 CTGGATGGAAATGAAAATTACCCGTCTTGTGGATGCAGACGGTGTGATTCTCC
 CACCAATAACCAACAGTGAGAAGACAAAGGTTAAGAAAACGACTTCTGATTTGTTTGG
 AAGTAACAAGTGCCACCACTGCAAGGATGTATGGATGCCCTCATCTGAA
 AATGCCAAGAAATGAAAAAGTACACTTAAAGAGGAAGGATCACTCTCAGAT
 ACTGAAGCCGATGCAGTCTGGACAACCTCCAGATCCCACACGAATCCCAGTGCTGGA
 AAGGACGGGCCCTTCTGGTGGAAACANGTCCCAGTGCTGGAANGGAA
 CCTGAANGTGGTGTACCCCGTCCAAGGCCGACCTGGCCAC

13707.4

TCCCGCGCTCGCAGGGCNCGTGCCACCTGCCYGTCCGCCGCTCGCTCGCCGCCGC
 GCCCGCGCTGCCGACCGYCAGCACTGCTGCCAGACTGGCTGCCCGCTGCCGCTGCCG
 CGCCCGCCGCTGCTGCCGCTGCCGCTGCTGC

13708.1&2

GGCGGGTAGGCATGGAAC TGAGAACGAAAGAACGTTTCAAGACTACGTGGGAAGAAT
 GAAAAAAACCAAAATTATGCCAAGATTCAAGAACGGGACAGGGAGCTCCAGCCCGAGA
 GCCTATTATTAGCACTGAGGAGCCAGAACGAGCTGATGCTGTACTATCACAGAACAGA
 GGAGCTCAAGAGATTGAAAGAAAATGATGATGCTGCTATTAAACTCACCATGGCGGA
 TAACACTGTTTGAAAAGACATTTCATGGAGTGAAAGACATAAAACTGGAGACCAAGATG
 AAGTTCAACCACCTGATGACACTTCAAAGAGATTAGCTCACCT

13709.1

TCTGAAGGTTAAATGTTCACTCTAAATACCGATAATGRTAAACACCTATACCATAGAGTTG
 TTGAGATTAAATGAGATAATACATGAAAATTATGCTGGCATACAGCAAGATTGTTG
 TTGTTGTTGATGATGATGATGATAATAATTCTATCCCCAGTGACACAACTGCTTG
 AACCTATTAGATAATCAATACATGTTGAACTGAGATCAATTCCCCATGTTGCTGAC
 TGATCAAGCCCTACATTCTTCAAGGGAGATGACATTGACCAAGATCTAAAGAAAAT
 CAGATGCCCTACCTGACCACTGCTGGTGTGATCCCATGGCACTTGTACATCTCTCCATTAG
 CTCTCATCTCACCAAGCCCCATCAATTGTAATGCTGCTGCCCTCTGAAGCTTGACGCTGGCTAC
 CATCMGCTAGAATAAAAATCATCTTCTATAAAATAGTGACCCCTCTTTTATTGCAATT
 CCCAAACCCAAGCACCGTGGCANGCTAG

13709.2

TATGAAGAAGGGAAAAGAAGATAAATTGTGAAAGAAAAGGGTCCAGTTACTAGTCCTTGA
 AAAGGGTCAGTCTGTAGCTCTTCTTAATGAGAATAGGCAGCTTCAGTTGCTAGGGTCAG
 ATTTCTTAGTGGTGTATCTAATCACAGGAACATCTGTGGTCCCTCCAGTCCTCTTCTGG
 GGGACTTGGGCCACTTCTCATTTCAATTAGAGGAATAGAACTCAAAGTACAATT
 ACTGTTGTTAACATGCCACAAAGACATGGTGGGAGCTATTCTGATTGTGTAAG
 GCTGTTTTGTGTGCTCATAATGGTCAAAAAATGGGTGCTGGCAAAGAGAGAGATACTGT
 TACAGAAGCCAGCAAGAACCTCTGTCATTACACACCCCCGGGATATCAGGAATTGAC
 TCCAGTGTGTGCAAATCCAGTTGGCCTATCTTCT

13712.1&2

TGAGGGACTGATTGGTTGCTCTGCTATTCAATTCCCCAAGCCCACCTGTTCTGCAGCG
 TCCTCCTTCTCATTCCCTTGTAGTTGACCCCTCTTCTATCTGAGACCTTCCTCTTGATGT
 CGCCTTTCTCTTCTGCTTTCTGATGTTCTGTCAGCATGTTCTGGGTGCTCTCATCT
 GCATCATTCTTCTTCTAGATGCTGTAAGCTTCTCCTCTCTGCTCCCTTCTTCTTCTT
 TTTGGGGGCTTGCCTCTGACTCCAGTTGAGGGGCCCAAGGTCTGGCCTTGTGAGACG
 AGCCAGGAAGGGCTGCTCCTGGCCCTCTAGGGAGCAAGCTTGGCCTTCAATTGTGATCCC
 AGACGGGCAGCCTGTGTGCTGTTGCCCTCAGAGGTTGGAGCAGCATCTCATCAGTCA
 GAATCTTGGGACTTGGACCCCTGCTTGTGTCATCACTGAGCTCTCCAAGTCTTGT
 GGCTTCTCTCCACCTGAACTCATCTGACAAACTCTGATAACAGCAAGTGG
 GCTTGGGATGATTATAACGGGTGGTCTCTTAAAGAAAGGCTCTTATCTGACTCCATCTG
 CCCAGTTCCACTACCAAGTGGCCAGCTCTGTTGAAGAGCTCATCCACCAGTGGTT
 GTGAACCTCTGGCAGGGCATGTCCTACCCATGAGTGTCTGCTCAGYGTACCCCTGA
 GACCCTGAGTGAATACCAATTCTCTTCCG

13714.1&2

GACAACATGAAATAATCCTAGAGGACAAAATTAACCTCAATAGAGTGTAGTCAGTTAA
 AACTCGA.AAAATGAGCAACTCTGCTGGAGTGGAGGAAGGGCTATACTATAAATCCAAG
 TGGCCCTCCTGATCTTAACAAGCCATGTCATTATACACATCTCTGAACTGGACATACAC
 CTTACGGAGGAACACGGGCTTGGAACTTCTAAGGGAAATTAAACATGCACCAACCAACATC
 TAACCTACCTGGCGGGTAGCTACCAATCCCTGCTTCGCTGAAATCACTGTC

13716.1&2

TTGGAAATTAAATAACCTGGAACACCGGAAGGTGAAAGTTGGAGTGGACATGTCTTCCATAT
 CTATACCTTGTGCAACACTTGAATGGAAACTCTGGTTAGGGCATCTTAGAGTTGATT
 GATGGAAAACCGACAGGAACCTGGTGGAGGTCAAGTGGGAAGTTGGTGAATGTGGA
 ATAACCTACCTTGTGCTCCACTAAACCAACATGTGTTGAGCTTCTGACATGCAAGGA
 TCTACTTTAAITCCACACTCTCATTAATAAAATTGAATAAAAGGGAAATGTTTGGCACCTGA
 TATAATCTGCAGGGCTATGTGACACTAGGAAGGAATGGTTCCCTAACAGCCCAATGC
 ACTGGTCTGACTTTATAAAATTAAATGAACATATTATC

13718.2

AAACTGGACCTGCAACAGGGACATGAATTACTGCARGGTCTGAGCAAGCTCAGCCCCCT
 ACCTCAGGGCECCACAGCCATGACTACCTCCCCAGGAGCGGGAGGGTGAAGGGGCC
 TCTCTGCAAGTGGAGCCAGAGTGGAGGAATGAGCTCTGAAGACACAGCACCCAGC
 CGCACCAAGCCTTAAC TG CTC GCT GAC CT GA ACC AGA ACC CAG CT GA ACT G
 TCCAAGGGACAGGAAGGCTGGGGAGGGAGTTACAACCCAAGCCATTCCACCCCC
 CTGCTGGGGAGAATGACACATCAAGCTGCTAACATTGGGGAGGGGAAGGAAGAAAA
 CTCTGAAAACAAAATCTTGT

13722.3

CATGCGTTCAACC ACT GTT GCC AGGGTGGTCTCGA ACT CCT GGCT CAAGCA AT CCACCC
 GCCTCAGCCTCAAAAAGTGTGGATTACAGATGTGAGCCATGGCACCATGCCAAAAGGC
 TATATTCTGGCTCTGTGTTCCGAGACTGCCTTTAATCCCAACTCTCTACATTAGATTA
 AAAAATATTTATTCAATGGTCAATCTGAACATAATTACTGCATCTTAAGTTCCACTGAT
 GTATATAGAAGGCTAAAGGCACAAATTTATCAAAATCTAGTAGAGTAACCAACATAAAA
 TCATTAATTACTTCAACTTAATAACTAATTGACATTCTCAAAAGAGCTGTTCAATCCT
 GATAGGTTCTTATTTTTCAAAATATAATTGCCATGGATGCTAATTGCAATAAGGC
 GCAATATGAGAATACCCCAAAC TCGA

13722.4

GTTGGACCCCCAGGGACTCGAAAGACACTTCTGCCAGCTGTGGGGAGAAGCTGAT
 GTTCTTTTATTATGCTCTGATCCGAAATTGATGAGATGTTGTGGCTGTGGAGCCAG
 CCGTATCAGAAATCTTTACCGAACCAAGGGCAATGCTCTTGTTATAATTATTGAT
 GAATTAGATTCTGTTGGTCCGAAAGAGAATTGAAATCTCCAATGCATCCATATTCAAGGCAGA
 CCATAAAATCAACTCTTGCTGAAAATGCAATGGTTAAACCCAAATGAAGGAGTTATCATAAT
 AGGAGCCACAAACTTCCCAGAGGCATTAGATAATGCCCTAAATACCGTCTGGTCTGTTGA
 CATGCAAGTTACAGTTCAACCCAGATGTAAGGTCGAACAGAAATTGGAAATGGTA
 TCTCAATAAAATAAAGTTGATCAATCCCGTTGATCCAGAAATTAGCCTCGAGGTACTG
 GTGGCTTTCCGAACCGAGTTGGAGAAATCTT

13724-13698-13748

GCCTACAAACATCCAGAAAGAGTCTACCCCTGCACCTGGCTSGTCTCAGAGGTGGGATGC
 AGATCTCGTAAGACCCCTGACTGGTAAGACCATCACTCTCGAAGTGGAGCCGACTGACA
 CCAAGAGAACGTCAAAACCAAGAGATCCARGACAAGGAAGGCRTYCCTCTGACCAGCAGA
 GTTGATCTTCCCGAAAGCAGCTGGAAAGATGGDCGCACCCCTCTGACTACAACATCC
 AGAAAGACTCYACCCCTGCACCTGGCTCCGTCTCAGAGCTGGGATGCARATCTCGTGA
 AGACCCCTGACTGGTAAGACCATCACCCCTCGAGGTGGAGCCAGTGCACACCCATCGAGAAATG
 TCAAGCCAAAGATCCAACAGATAAGGAACCCATCCCTCCTGATCAGCAGAGGTTGATCTTGT
 CTGGGAAACAGCTGGAAAGATGGACCCACCCCTGACTACAACATCCAGAAAGAGTCCA
 CTCTGCACCTGGCTCTGGCTTGAAGGGGGGTGTCTAAGTTCCCTTTAAGGTTCMAC
 AAAATTCAATTGCACTTTCTTCAATAAGTTGTTGCAATTCCC

FIG. II

13730.1

GAAC TGGGCC TGA GCCC AAGT C ATG CCTT GTGT CGCA T CTG CCGT GTCA CCTCTG TKCC
 TGCC CCTC ACCC CCTC CTGGT CTTCTG AGCC AGCACCATCT CAAATAG CCTATT CCTT
 CCTG CAAATCACACACACATGC GGCC ACACATACCTGCTGCCCTGGAGATGGGAAGTA
 GGAGAGATGAATAGAGGCCATACATTGTACAGAAGGAGGGCAGGTGCAGATAAAAGC
 AGCAGACCCAGGGCAGCTGAGGTGCATGGAGCACGGTGGGGCGCATGGGCTGAGC
 ACCTGATGGGCCTCATCTCGTAATCCTCGAGGCAGC GCCACAGCAGAGGAGTTAAGTGG
 CACCTGGGCCGAGCAGAGCAGGAGACTGAGGGTCAGAGTGGAGGCTAACGCTGCCCTGGA
 ACTCCTCAATCTTGCCCTGCCCTAGTATGAAGCCCCCTTCCCTGCCCTACAATT CCTGA

13732.1

ATGGATCTTACTTTGCCACCCAGGTTGGAGTGCAGTGCTGCAATCTGGCTCACTGCAGCC
 TTAACCTCCCAGGCTCAAGCTATCCTCTGCCAAAGCCTCCACATAGCTGGACTACAGG
 TACACNGCCACCACACCCAGCTAAAAAATTTGTATTTTTGTAGAGACGGGATCTGCCAC
 GTTGGCCAGGCTGGTCCCATCTGACCTCAAGCAGATCTGCCACCTCAGCCCCCCCACGT
 GCTAGGATTACAGGGCTGAGCCACCCAGCCTTGTGTTAATGGAATCACC
 AGTTCCCTCCGTGTCAGCAGCAGCTGTGAGAAATGCTTGCATCTGTGACCTTATGA
 AGGGGAACCTCATGCTGAATGAGGGTAGGATTACATGCTCCTGTTCCCCGGGGTCAAG
 AAAGCCTCAGACTCCACCATGATAAGCAGGGTGAG

13732.2

ATAGGGGCTTAAGGAGGGAAATTCAAGCTTCAATGAGGTGTAAGGCCAGGGCTTTATCC
 AGTAAGACTGGGTCTTACATGAGAAAGAGAGACACCCAGGGTCTCTCTGCCGTG
 AGGATGCATCAAGAAGGGGGGGTCTGCAAGGCAAGGAGAGGGCCACCAAGAAACCGAC
 ACCTTCATCTTGGACTTGGAGGCTCTAGAACTGAGAAAATAACTGCTGTTGGTTAGCCA
 CCCAGTTGTAGTATCTCTTATGGCTTCTAAGCAGACTAACAAACAAACACCCAAAATT
 AACTGATGGCTTCCGCTGTTCTGTAAGAAATTGCTATGAGAGAAACTTTCACTCACTGTTT
 GCAGTTTCTCCCTCACTCCCTGTTCTTCACATAATCCCAATTCAATTATAGTT
 ATGGCCCAGGCAGAGTCATTCATCACGGCACTCTGAGCTAACCCAGCACCTGCTCTGCT
 CACTTCTTGAATCTGGCTCTCATCATCACCCCTTGCAGAGATTCAATTCTCCGTGCCA
 GGTACTTCACGGCACCAAGCTCA

13735.1

GGATAATGAAAGTTGTTTATTAGCTTGGACAAAAAGGCATATCCCTCATTTCTTATACA
 ACAAAATATCCCCAAAATAAAGCAAGCATAATATATCTGAATGTGTAATAATCCAGTGATA
 AACAGAGCACTACTTTAAAGAALAAAATATGTATTCTGTCAAGGTTAAATGAGAA
 TCAAAACCATTTACTCTGCTAACTCATTATTTTGTCTTGGTTAAGAGAGGCAAT
 GCAATACACTGAAAAGGTTTATCTTATCTGGCATTGGATTAGACATATTCAAACCCC
 AGCCCCCATTCCAAACTTTAAGACCACAAACAAGTAATTACTTTCTGAACATTGGTTT
 TTCTGGAAATGGGAATTATAAAATAGACTTTGAGACTCTTATGAGATTAAATAAGATA
 ATGTATGAAATTCTTCTCTTTACTCTTTCTTGTGAGATGGAGTCTCACCCCGT
 CACCCAGGCTGGAGTACAGTG

13735.2

CCACTGCACTCCAGCCTGGGTGACGGAGTGAAGACTCTGTCAAAAAAACAAACAA
 ACAAAACAAAAAAACTGAAAAGGAAATAGAGTTCCCTTTCTCATATATGAATATATTATT
 CAACAGATTGATCACCTACCATATGCTTGGTATTGTTCTAATTGCTGGGATACAGCA
 AGAGGTTCTCAGAACCTCATGGAGCATGAAAGTAAATAAAACAAAGTTAATTCAAGGCC
 AGGCATGGTGTCTCACACCTTACTCCCAGCAGTTGGGAGGCTGAGGCAGGTGGATCACT
 TGGGCCAGGAGTTAACGGCTCAGTGAAGCCAAGATTGTGCCACTACTCTCAGGCTGGG
 CAACAGACCAAGACCTGTCTCAGGGGAACAAAAAGTTAATTCAAGATTGTTAAGTG
 CTGTAAAGGAACCTAAATAGGTGATAATTCAAGAGAGACCTGAAGGCCAGGCCGTGGC
 TCACGCCTGTGGTCTAACGCTTGGAAACCCCGAGCGGGGGATCACAGGTCAGGAGAA
 TTGGCCAGGCATGGTG

13736.1

AGAATCCATTATTGGCTTTAAACTACTTACACAACTGAATCAGTTGGCACTACTTTA
 TACAGGGATTACGCCCTGTCTATCCCCACACTAAATACTGTACCCAGGACACTGCTGTGCT
 TAGGTCTGATTCACTCATTCAGCATGTACATACTAAATATACTGTAGTGTCTTAA
 CGAAGACTGTACAGGTGTGGCAACATGACATTCAACAAATTGTGAAATTATTCAACCC
 ACAAGATACCTTCACTCTATAAAACTCTCATAGGCAACATGTGGTGTAGCATTGAGAG
 ATGGCACACAAAAATGTTACATAAAACTTACAGACATTCTAAATGATAAGTGAACCTCAAAAAA
 AAAACCCACATCTAAATTGTAACAGATAAGAAATAATTAAAAACACAAA
 AAATGGCATTCACTGGTACAAAGCC

13737.1&2

CAAATTTAATATAAAATCTTGAACAAAGTTACAGAKGAATAAAATCAAAGTTGCAA
 AAACGTGAAGATTAACCTTAAATTGTCAAATTCTCATTTGCCCAAAATCACTATTTTTTA
 TTCTATGCAAAAGTATGCCCTCAAAACTGCTTAAATGATATATGATATGATACACAAACCA
 GTTTCAAAATGTAAGGCCAGTCATCTGCAATTGTAAGAAATAGGTAAGATTATAAG
 ACACCTTAC
 AATTGGCCTCTCTAAATAAGAACATGAAGACCCCTTAATTGCTGCCAGGAGGGAACAC
 TGTGTCACCCCTCCCTACAAATCCAGCTACTTTCTTTAATCCAATGCAAATCTGGGCATAT
 TTGAGAGGAGGTGATTCTGACAGCCACSGTTGAAAATCTGTGGGGAAACCAATTGATGTCCACC
 CACTGGTGCCTGAAAAAAATGCCAAATAATTCTGCTGCCACTTCTGCTGCTGTCTCTTCCA
 CATCCTCACATAGACCCAGACCCGCTGCCCTGGCTGGGATCGCATTGCTGGTAGAGC
 AAGTCATAGGTCTGTCCTTGAACGTCACAGAAGCGATACACCAAAATTGCTGGTCGGTCAT
 TGTCAAAACCAG

FIG. IN

13738.1

TTTGACTTTAGTAGGGGTCTGAACATTTATTTACTTTGCCMGTAAATTARACCYTATA
 TATCTTTCAATTGCCATCTTATCTTCAATGBCAAGGGAACAGWTGCTAAMCTGGCTTCT
 GCATTWATCACATTAAAATGGCTTCTTGGAAAATCTTCTTGTATGAATAAAGGATCTT
 TTAVAGCCATCATTTAAAGCMGGNTCTCTCCAACACGAGTCTGCTSASGGGGGGKGAGCT
 GTGAACCTGGCTGAAGGCTTCCCACACACTGCAATGACMTGTTCTGACCAGBGTG
 AGTTA

13738.2

AGAGAAGCCCCATAAAATGCAATCAGTGTGGGAAGGCCTTCAGTCAGAGCTCAAGCCTTT
 CCTCCATCATCGGGTTCACTGGAGAGAAACCCATGTATGTAATGAATGCCAGAGCC
 TTGGTTTTAACTCTCATCTTACTGAAACGTAAGGATTACACAGGAGAAAACCCATG
 TTGTAATGAGTGCAGCAAGCCTTCGTCGGAGTCCACTCTTGTTCAGCATCGAAGAGT
 TCACACTGGGAGAAGCCCTACCGAGTGCAGTTGAATGTGGAAAGCTTCAGCCAGAGCTC
 CCAGCTCACCCATCATCGCCAGTTACACTGGAGAGAAAGCCCTATGACTGTGGTACTG
 TGGGAAGGCCCTCAGCCGGAGCTAACCTCATTCAAGCATAGAAAGTTACAGCGGAGA
 GACTCGTAAGTGCAGAAAACATGCTCCAGCCTTGTTCATGGCTCCAGCCTCACAGCAGAT
 GGACAGAATCCCACGGAGAGAACCGCAGAACCTTTAACCATGGTCAAATCTCATT
 CTGCGCTGGACAGTTC

13739.1&2

GAGACAGGTCTCACTTTGTCAACCAAGCCTGAAATGCAAGTGTGCGATCTTACGTAGCTCA
 CTGCAGCCCTGACCTCCTGGACTCAAAACAAATTCTCTGCCCCAGCCTGCAAGTAGCTGGG
 ACTGTGGGTGCACTGCCACCATGCCCTGCTAACCTTGTAGTTTGTAAAGATGGGTTTT
 GCCATGTTGACATCCTGGCTTGAACCTCTGAGCTCAAACGATCTGCCACCTGGCCTC
 CCAGAAATGTTGGGATTACACGGCTAACACCACGCCCTGCCCCATTAGGTAATTCTTAGC
 ATCCACTTGCTCACTGAGATTAAATCATAAAGAGATGATAAGCACTGGAAGAAAAAAATT
 ACTAGGCTTGGATATTCTTCTTACACCTTTATACAGAGGATTGGATCTTACGTTT
 CTTAACGTAAATAAAACAATGAAAGCAAATAACTTACCTGAGATTACAGAGATAAC
 CGGCATCACTCCCTGCTCAATTCCACTTTTACACATCAATTATTCTACAGAGTGCAGGA
 TAAAGGCCTTACTCTGCTTTCGCACTTTCTCCACTTTCTCAGACCTGCTGACA
 AATGGAATTGACACCGTATGCCATGCAATTCCATTCTCAGGCAACCTGCTGACA
 CCACCAATCCCTTGTCTCTCTTGGAGACATCTTCTTATCAGCTAGTCTTGGCAAAAGTA
 ATTGCAACTCTTCTAGTATTCTATTCTCCGTTCCACTGCTGGAACCCCTGGGACAGGA
 CTAAAACCTCCAG

13741.1

ATCTCATATATATATTCTTCTGACTTTATTTCTTGTCTCTGNACGCCATTAAAATATC
 ACAGAGACCAAAAATAGACCGGGCTTCTGGTGGAACGCCATGGCAGTCACAGGACAAAATAC
 AAAACTAGGGGGCTCTGTCTTCTCATACATCATACAAATTCAAGTATTTTTTATGTACA
 AAGAGCTACTCTATCTGAAAAAATTAAAATTAATGAGACAAAGATAAGTTATGCATC
 CTAGGAAGAAAAGAAATGCGAACGAAACAGGGGCACTTGGTACAGATTCTGCCCCCTGT
 TCCCAGGGACCAACTACCTTCTGCCACTGACTTCCCCACAGCCTCACCCATCATGTCACA
 GGGCAAGTGCCAGGGTAGGTGGGGACCACTGGAGACACGAAACCAACATACTTTGGC
 CTGGAAAGATAAGGAGAAAGTCTCAGAAACACACTGGTGGGAACCAATCCACANGGGCGT
 GCCCCANGAGCTTCCCACCTGCTGCTGCCCTGGTGGCTTGGGAACAGCTTGGGAG
 GCCCTTTGGGTGGGNCCAACCTGGCCCTTGGGCCCTGTGGAAG

13742.1

AAACATTGAGATGGAATGATAAGGGTTCCAGAACATCAGGTCCATATTTAACTAAATGAA
 AATTATGATTATAGCCTTCTAAATACCTGCCATACCTGATATCTCAACCAGAGCTAATT
 TACCTCTTACAATTAAATAAGCAAGTAACCTGGATCCACAATTATAATACCTGTCAATT
 TTCTGTATTAACCTCTATCATAGTTAACGCCTATTAGGGTACTTAATCCTTACAATAA
 ACAGGTTAAATCACCTCAATAGGCACACTGCCCTCTGGTTTCTTCTTGTACTAAACAAT
 CTGAATGCTTAAGATTTCCACTTGGGTCTAGCAGTACACAGTGTACACTCTGTATTCC
 AGACTTCTAAATTATAGAAAAAGGAATGTACACTTTGTATTCTTGTAGCAGGGCCCG
 GGAGGCAACATCATCTACCATGGTAGGGACTTGTATGCATGGACTACTTTA

14351.1

ACTCTGTCGCCAGGGCTGGAGGCCABTGGMGGCATCTGACTCCCTGCAAGCTMGGCTC
 ACAGGWTCACTGCCATTCTCCTGCCAGCATCTGGAGTAGCTGGACTACAGGGGCCAGC
 CACCATGCCAGCTAATTTT

14351.2

ACCTAAAGACATAGGAGAAATTATACTGGAGAGAAACCTTACAATGTAAGGTTCTG
 ACAAGACTGGGAGTGATTACACCTGAAACAACATACTGGACTTCACACTGGABAGAAA
 CCTTACAAGTGTAAATGAGTGTGGCAAAAGCCTTGGCAAGCAGTCAACACTTATTCAACCATC
 AGGCAATTCA

14354.2

AGTCAGGATCATGATGGCTCACTTCCCACAGCGATGAATGGAGGGCAAATATGTGGGC
 TATTACATCTGAAGAACCTACTAACCATGATAAACAGTTGATAACCTCAAACCTTCAGGA
 GGTTACATAACAGGTGATCAAGCCCCGTACTTTTCTACAGTCAGGTCTGCCGGCCCCGG
 TTTAGCTGAAATATGCCCTTATGAGATCTGAACAAGGAAGGGAGGGAAAGATGGACCAAG
 AGTTCTCTATAGCTATGAAACTCATCAAGTTAAAGTTGCAGGGCCAACAGCTGCCCTGTAGT
 CCTCCCTCCTATCATGAAACAACCCCTATGTTCTCTCCACTAACTCTGCTCGTTTGGGA
 TGGGAAGCATGCCAACTGTCCATTGACCCATTGCCCTCCAGTTGCACCTATAGCAAC
 ACCCTTGTCTCTGCTACTTCAGGGACCAAGTATTCTCCCTAATGATGCCCTGCT

14354.1

CTTCGATTTCTCAATTGTCACGTTGATTTATGAAAGTTCTCAAGGGCTAACGTGCTG
 TGTTATATAGCTTCTGACTTCCCTACCTGATTGTTAAATGAAATCCATTCTGAGAGCT
 TAGATGGCAGTTCTTTCAAGAGCATCTAAATGTTCTTAAGCTTGGCATAATTCTTCC
 TTCTGATGACTTCTATGAACTAAACTGATGCCCTGAATCAGGTGTGTTACTGAGCTGCAT
 GTTTTAATTCTTCGTTAAATGCTGCTCTCAGGGACCAAGATAGATAAGCTTATTTGAT
 ATTCCCTAAGCTTGGTGAAGTTGGTCAATTCCATAATTCCAGGTACACACTGGTTATCC
 CAAACTTCT

16431.1.2

GTGGAGGTGAAACGGAGGCAGAAAAGGGGGTACCTCAGGAGCGAGGGACAAAGGGGGC
 GTGAGGCACCTAGGCCGCGCACCCCGCGACAGGAAGCCGTCTGAACCAGGCTACCGG
 GTAGGGGAAGGGCCCGTAGTCCTCGCAGGGCCCCAGAGCTGGAGTCGGCTCACAGCC
 CCGGGCCGTCGGCTTCTCACTTCCTGGACCTCCCCGGCGCCGGGCTGAGGACTGGCTCG
 GCGGAGGGAGAAGAGGAAACAGACTTGAGCAGCTCCCCTGTCTCGCAACTCCACTGCC
 GAGGAACCTCATTTCTCCCTCGCTCTCACCCCCCACCTATGTAGAAAGGTGCTGAA
 GCGTCCGGAGCGAAGAAGAACCTGGCTACCGCTCTGGCCTTCCCACCCCCCTCCGGGG
 CGCTTGGTGGCGTGGAGTTGGGGTTGGTGGGGTTCTTTGGAGTGAGTGT
 GGGGAACTTTTTCCCTTCTTCAGGTCAAGGGAAAGGAATGCCAATTAGAGAGACAT
 GGGGGCAAGAAGGACGGGAGTGGAGGAGCTCTGGAACCTTGAGCCGTACCGGAGG
 CGGCAGCTCTAACAGCAGAGAGCGTCACCGCTTGATCGAAGCACAAGCGGCATAAGTC
 CAAACACTCAAAGACATGGGGTTGGTACCCCCCGAAGCAGCATCCCTGGCACAGTTAT
 CAAACCTTTGGTGGAGTATGATGATATCAGCTCTGATTCCGACACCTCTCCGATGACATG
 GCCTCAAACTAGACCGAAGGGAGAACGACGAACGTCGTGGATCAGATCGGAGCGACCGC
 CTGCACAAACATCGTCAACCACCAAGCACAGGCCTCCGGACTTACTAAAGCTAAACAG
 ACCG

16432-1

GACATTTGCCTGCACGGGACCAAGAGAAATGGGATTAGCCAGTGCTCACTGTTCTTAT
 GCTTCCAGAGAGGATGGGCACAGCTCTCAGGTCAAGAAATCCAGGCTGAGAAGGCCATGCTG
 GTTGGGGGCCCCCGAACCACGGTCCGGATCCTCCCTGGCATAGCGTAGACCCGCTGCTC
 AGGCTTGGGTACCAAACCTCATGCTCTGTACTGTTTGGCCCATGCGGTGAGAGGGAAAAC
 CTAGAAAAAGATTGGTCGTGCTAACGAAATCAGCTGCCCTCATCCTCCGATCCAATGCT
 GGTGACAACATATTCCCTCTCCAGGACACAGACTCGGTGACTCCACACTGGCTGACTGG
 CCTCTGGAGGCCCTGTGCCCTAACGGCAGGGCTCCGTAAGGCTGATGGCTGAACTGGCTGG
 GGTGAGGGTTCTGACCCTCCCTCCATACCGCTGTCAATGAGETCACACTGT
 GGTCA.

16432-2

GATGGCATGGTCGTTGCTAAATGTCCTGCTGGCATGGAGCACTTCCCTGTGAGGCCAGG
 GGACCCGCTGTCCTGGAGCTTGGGGAAACGGAGGGAAAGACTGATACCAAGGAAGGTGGG
 GCTGCAGCCAGGGCCAGACTCAGTTCAAGGAGTGGCTCTGGCCCTCAAGCTCCTCCG
 GGGACTGCTCAGGAGTGTGGTCCCTGGAGTTGGCCCAACTTCCCTGGCACCCCTGGAA
 GGTGCTGGCTGCTCCAGGCTCTAGGCTGGCTGATGGGTTCTCCAGGACACAAGTATC
 ATTAAAGCCACCCCTCTCCAGCTTGTCAAGGGCCACATGTGGGACAGGCTGTGTCACAA
 CCCCTGCCCTGCCCTGCCCTCCATCAGGAGGCCAGTGGAACCTTCCGAAAGCTCCAG
 CATCTCAGCAGCCCTCAAAAGCTGCTGCCAACGCTCTGGTTCTCTGACTGGAGGTCA
 TCTGGCTTGGCTGCTCTCTCGC

17184.3

TAAAAAAAGTGTAAACAAAGGTTTATTTAGACTTTCTTCATGCCCTCAGATCCAGGATGTCTA
 TGTAACCGTTATCTTACAAAGAAAGAACCAATAATTGCTATAAAACTAAGTCAGTGACTTGC
 TTAACGTAAATAGCGTCCATCCAAAAGTGGCTTAAGGTAAAACCTACCTGACGATATTGCC
 GGGGATCTGCACTTGGACTGCTTGGGGTTGTCCAGGGCTCCGGGTCTGTTCTTGGC
 ACTCATGGGACAGGCATCTGCTCTGTGGGCCCTGGAGCCCTAACGTGAAGCT
 GAAGGTATCGACCTAACGGGGCTCTAGGGCAGTGGACCTTACCGGAACTAACAAGGG
 TCGGGGAGAGGCCCTCTGGCTATGTGGC

FIG. 1Q

17184.4

CAAGCGTTCTTATGGATGTAATTCAAACAGTCATGCTGAGCCATCCC GGCTGACAGT
 CACGTTWAGAÇACTAGGTGGCGCCACAGTGCCACCCAGGAGAAAGAAGAATTGGA
 ATTTTCCATGAAGATGTACGAAATCTGATGTTGAATATGAAAATGGCCCCAAATGGAA
 TTCCAAAAGGTTACCACACGGGCTGTAAGACCTAGTACCTCTTAAGTGGGAAAGAGGA
 ATGGAGAAATAGTATTCTGATGCAATCAAGAACATCAGAAATAAAACTGAGATCATATAATG
 AAGGAAAATTCATATCCAATATGAGTTACTCAGAGACAGTAGAAACTATTCCAGG

17185.1

TAGGAATAACAAATGTTATTCAAGAAATGGATAAGTAATACATAATCACCC TTCA TCTCTT
 AATGCCCTTCTCTCTGCACAGGAGACACAGATGGTAACATAGAGGCATGGAA
 GTGGAGGAGGACACAGGACTAGCCCACCACCTTCTTCCCCGTCTCCAAGATGACTGCT
 TATAGAGTGGAGGAGGCAAACAGGTCCCCCTCAATGTACCAAGATGGTCACCTATAGCACCA
 GCTCCAGATGGCCACGTGGTTCAGCTGGACTCAATGAAACTCTGTGACAACCAGAAAGAT
 ACCTGCTTGGATGAGAGGGAGGATAAAGCCATGCAGGGAGGATATTACCATCCCTAC
 CCTAACGCACAGTGCAGCAGTGAGCCCCGGCTCCAGTACCTGAAAAACCAAGGCCTAC
 TGNCTTTGGATGCTCTTGGCCACG

17188.2

AAGCCTCCTGCCCTGGAAATCTGGAGCCCCCTGGAGCTGAGCTGGACGGGGCAGGGAGGG
 GCTGAGAGGCAAGACCGTCTCCCTCTGCACCTGCTTCCCCAGCCAGCCACTGCTGGGC
 ACACCAAGAAACGCCACCCACAGAAAATGGGAGGGAGGAGCTCCTAGCCCTGGAGCTGAGG
 CTGCCCTGGGCTGACCCGCTGCCTGACGGGAGGAAACTGGGTTGGCATCTGGCATCC
 ATTTGAGGCCACGGGTGGAGGAAAGGGAGGAAACAGAGGAAAACCTTATTCCTGCTGTGAC
 AACACACCCCTGTCCCACCCAGCCTAAGTGCAGGGAGCGTGTGAAGTCAGGCAGCCAG
 TCGGGGAGGACGAGCTAATCTCAGAGCAATGTCACCTTGAGCCTATGGCCTCAATGGCC
 CGGAGGGGGCAGCAACCCCCCGCACACGTCAAGCAACAGCAAGTGCCTCTGCAGGCACCAAG
 AGACCGATGAGGACTTGAAGCCCCGTGTC

17190.1

GTTTGGCAGAAGACATGTTAAATAACATTTTCAATTAA,AAAATACAGCAACAAATTCTCT
 ATCTGTCACCATCTTGCCTTGCCTTCTGGGCTGAGGCAGACAAAGGAAGGTAATGA
 GGTTAGGGCCCCCAGGGGGCTAAGTGCTATTGGCCTGCTCTGCTCAAAGAGAGGCCATA
 GCCAGCTGGCAGGGCCCTAGCCCTCCAGGTTGCTGAGGGGGCAGCGGTGGTAGAGT
 TCTTCACTGACCCGTGGGCTGCAAGTCTGCAAGGGAGAAACTCTGCAACAGCCCTGGCTCTA
 CGGCCEGAAGAGGCTGGAGCCCTGAGAAACCGGAGGAAACATCCATCACCTCCAGCCCC
 CCAGGGCTTCTCTCTTCTGGCTCCACCTCACCTGCCAGCCCCGGCTGGGGCCAG
 GTACTCAGCCTTGAGAACAGCCCTCCAGAACAGCTGCCCCGTCAAATCTCCCCGCTATA
 GGAGCCCCCGGGAGGGCTCACCA

FIG. IR

17190.2

CAAGTTAACGTCAGGCTTGGCAGAGGTGGAGTGTAGATGAAAACAAAGGTGTGATTATG
AAGAGGAATGTGAGTCCTTGGGTGTAAGGAGAAAAGGCTGTTGAGCTTCTATTCAAGAT
ACTTTTACCTGTGAAAAAGCACATTTCACCTCCTCTCATGGCATTGTGTAAGGTGAG
TATGATTCTATTCCATCTGCATTTAGAGGTGAAGAATAACGTACAAGGGATTCAAGTGT
TAGCAAGGGACCCCTCACTAAGTGTGATGGAGTTAGGACAGAGCTCAGCTGTTGAATCT
CAGAGCCCAGGCAGCTGGAGCTGGTAGGATCTGGAGCTGGACTAATGTGAGGTGCA
TCCCTCCAACCCAGGCTCAGATCCGAAACCTGACCGTGCTGACCCCCGAAGGGGAGGCAG
GGCTGAGCTGGCCCGTGGGCTCCCTGCTCCTTACACACCACACTCTGCTTGAGGTGCTG
GGCTGGGACTACTCACAGAGCAGC

17191.2&89.2

TGGCCTGGCAGGATTGGGAGAGAGGTAGCTACCGGATGCAGTCCTTGGGATGAAGAC
TATAGGGTATGACCCCATCATTCCCCAGAGGTCTCGGCCTCCTTGGTGTGAGCAGCTG
CCCCCTGGAGGAGATCTGGCCTCTGTGATTTCATCACTGTGACACTCCTCTCCGCCCTC
CACGACAGGCTTGCTGAATGACAACACCTTGCCAGTGCAAGAAGGGGGTGCCTGTGGT
GAACGTGCCCCGTGGAGGGATCGTGGACGAAGGCGCCCTGCTCCGGCCCTGCAGTCTGG
CCAGTGTGCCGGGGCTGCACTGGACGTGTTACGGAAGAGCCGCCACGGGACCGGGCCTT
GGTGGACCATGAGAATGTCATCAGCTGCCCCACCTGGGTGCCAGCACCAAGGAGGCTCA
GAGCCGCTGTGGGAGGAAATTGCTGTTCAAGTCAGTGTGACATGGTGAAGGGAAATCTCT
CACGGGGTTGTGAATGCCAGGCCCTT

FIG. 1S

AGCCAGATGGCTGAGAGCTCCAAGAAGAAAGTCAGGATCATGATGGCTCAGTTCCCACAG
CGATGAATGGAGGGCAAATATGTGGCTTATTACATCTGAAGAACGTACTAAGCATGATA
AACAGTTGATAACCTCAACCTTCAGGAGGTTACATAACAGGTGATCAAGCCGTACTTT
TTTCTCACAGTCAGGTCTGCCGGCCCCGGTTAGCTGAATATGGCCTTATCAGATCTG
AACAGGATGGAAAGATGGACCACAGCTGCCTGTAGTCCTCCCTCATGAAACAACCCCTATGT
AAGTTGCAGGGCAACAGCTGCCTGTAGTCCTCCCTCATGAAACAACCCCTATGT
TCTCTCCACTAATCTGCTCGTTGGGATGGGAAGCATGCCAATCTGTCCATTCACTG
CCATTGCCTCCAGTGCACCTATAGCAACACCCCTGTCTGCTACTTCAGGGACCAGTAT
TCCTCCCCTAATGATGCCTGCCTCCCTAGTGCCTCTGTAGTACATCCTCATTACCAAATG
GAAC TGCCAGTCTCATTCAGCCTTATCCATTCCATTCTTCACATTGCCCTATGCA
TCATCTTACAGCCTGATGATGGGAGGATTGGTGGTGCTAGTATCCAGAAGGCCAGTCTC
TGATTGATTAGGATCTAGTAGCTCAACTTCCCTCACTGCTCCCTCTCAGGGAACTCACCT
AAGACAGGGACCTCAGAGTGGCAGTCCCTCAGGCTTCAGGTTAAAGTATCGGCAAAAA
TTAATAGTCTAGACAAGGCATGAGCGGATACCTCTCAGGTTCAAGCTAGAAATGCC
TTCTCAGTCAAATCTCTCTCAACTCAGCTAGCTACTATTGGACTCTGGCTGACATCGAT
GGTACGGACAGTGTAAAGCTGAAGAATTATTCTGGCGATGCACCTCACTGACATGGCC
AAAGCTGGACAGCCACTACCACTGACGTTGCCCTCCGAGCTTGTCCCTCCATCTTCAGAG
GGGGAAAGCAAGTTGATTCTGTTAATGAACTCTGCCTTCATATCAGAAAACACAAGAAG
AAGAGCCTCAGAAGAAAACGCCAGTTACTTTGAGGACAAACGGAAAGCCAACATGAAC
GAGGAAACATGGAGCTGGAGAACCGACGCCAAGTGTGATGGAGCAGCAGGAGGGAG
GCTGAACGCAAAGCCCAGAAAGAGAAGGAAGACTGGAGCGGAAACACAGAGAACTGC
AAGAGCAAGAATGGAAGAACCGAGCTGGAGTTGGAGAAACGCTTGGAGAAACAGAGAGAG
CTGGAGAGAACCGGGAGGAAGAGAGGAGAAAGGAGATAGAAAGACGAGAGGGCAGCAA
AACAGGACCTTGAGAGACAACGCCGTTAGAATGGAAAGACTCCGTCGGCAGGAGCTGC
TCAGTCAGAAGACCAAGGAAACAGAACACATTGTCAGGCTGAGCTCCAGAAAGAAAAGT
CTCCACCTGAACTGAAAGCACTGAAATGGAAAACATCAGGAGATCTCAGGAGACTACAA
GATGTCCAATCAGAAAGCAACACAAAAGACTGAGCTAGAAAGTTGGATAAACAGTGT
GACCTGGAAATTATGGAAATCAAACAACCTCAACAAAGACCTTAAGGAATATCAAATAAG
CTTATCTATCTGGCCCTGAGAACCGAGCTTAAACGAAAGAATTAAAACATGCAAGCTCA
GTAACACACCTGATTACGGGATGACTTTACTTCATAAAAAGTCATCAGAAAAGGAAGAAT
TATGCCAAAGACTTAAAGAACAAATTACATGCTCTGAAAAAGAAACTGCACTAAGCTCT
CAGAAATGGATTCAATTAAACAACAGCTGAAGGAACACTAGAGAAAGCTATAATAACACAGC
ACTTAGCCCTGAAACAACCTTCATAAAAATCAAACGTGACAAATTGAAGGAAATCGAAAGAA
AAAGATTAGAGCAAAAAAA

ATGGCAGTGACATTCAACCATCATGGGAACCACTTCCCTTTCTCAGGATTCTCTGTAGTG
GAAGAGAGCACCCAGTGTGGGCTGAAAACATCTGAAAGTAGGGAGAAGAACCTAAAAT
AATCAGTATCTCAGAGGGCTTAAGGTGCCAAGAACGTCAGTGGACATTTAAGTGCCAA
CAAAGGCATACTTCCGAATGCCAAGTCAAAACCTTCTAACTTCTGTCTCTCAGAGAC
AAGTGAGACTCAAGAGTCTACTGCTTATGGTCCAATATTCAAAGCTCCGCAAACAGGATGTGCTT
AAAACAGGAGCAATTAGAAATGGTCCAATATTCAAAGCTCCGCAAACAGGATGTGCTT
TCCTTGCCTTATTAAGGGTTCTCTCTTCTTCTTATTAACCACTA

ATATCTAGAAGTCTGGAGTGAGCAAAACAGAGCAAGAACAAAAAGAAGCCAAAAGCAG
AAGGCTCCAATATGAACAAGATAAAATCTATCTCAAAGACATATTAGAAGTTGGGAAAAT
AATTCACTGTGAACAGACAAGTGTGTTAAGAGTGATAAGTAAATGCACGTGGAGACAAG
TGCATCCCCAGATCTCAGGGACCTCCCCCTGCCTGTCACCTGGGGAGTGAGAGGACAGGAT
AGTGCATGTTCTTGTCTCTGAATTITTAGTTATATGTGCTGTAATGTTGCTCTGAGGAAGC
CCCTGGAAAGTCTATCCCAACATATCCACATCTTATATTCCACAAATTAAAGCTGTAGTATG
TACCCCTAACAGCGCTGCTAATTGACTGCCACTTCGCAACTCAGGGGGCGCTGCATTITAGTA
ATGGGTCAAATGATTCACTTTTATGATGCTTCAAAGGGTGCCTGGCTTCTCTTCCAACT
GACAAATGCCAAAGTTGAGAAAATGATCATAATTITAGCATAAACAGAGCAGTCGGCGA
CACCGATTTTATAAATAAACTGAGCACCTTCTTTAAACAAACAAATGCGGGTTTATTCT
CAGATGATGTTCATCCGTGAATGGTCCAGGGAGGACCTTCACCTGACTATAAGGCATT
ATGTCATCACAAGCTCTGAGGCTTCTCCATCCTGCGTGGACAGCTAACAGACCTCAGT
TTCAATAGCATCTAGAGCAGTGGGACTCAGCTGGGGTGAATTGCCCCCATCTCCGGGG
GAATGTCTGAAGACAATTGTTACCTCAATGAGGGAGTGGAGGAGGATACAGTGCTACT
ACCAACTAGGGATAAAAGGCCAGGGATGCTGCTAACCTCTACCATGTACAGGACGTCTC
CCCATTACAACATACCAATCCGAAGTGTCAACTGTGTCAGGACTAACAGAAACCTGGTTTG
AGTAGAAAAGGGCTGGAAAGAGGGGAGCCAACAAATCTGTCTGCTTCCTCACATTAGTC
ATTGGCAAAATAAGCATTCTGCTCTTGGCTGCTGCTCACAGACAGAGGCCAGAACTCTA
TCGGGCACCAGGATAACATCTCTCAGTGAACAGAGTTGACAAGGCCATGGGAAATGCCT
GATGGGATTATCTTCAGCTTGTGAGCTTCTAAGTTCTTCCCTTCATTCTACCCCTGCAAG
CCAAGTTCTGTAAAGAGAAATGCCCTGAGTTCTAGCTCAGGTTCTTACTCTGAATTAGATC
TCCAGACCCCTTCTGCCACAAATTCAAAATTAGGCAACAAACATATAACCTTCCATGAAGCA
CACACAGACTTTGAAAGCAAGGACAATGACTGCTGAATTGAGGCCTTGAGGAATGAAG
CTTGAGGAAAGAATACTTTGTTCCAGCCCCCTTCCCACACTCTCATGTGTTAACAC
TGCCTTCTGGACCTTGGAGCCACGGTGACTGTATTACATGTTGTTATAGAAAACGTGATTT
AGAGTTCTGATCGTCAAGAGAAATGATTAAATATACATTCTCA

Elemental Display

Unit No	Probe 1	1 xp	Probe 2	1 xp	Unit 1 Element	Unit 2 Element	Unit 3 Element	Probe 1	5/11	A%	Probe 2	5/11	A%	1 xp	X
1.1	104A Ovary tumor		2124, fibroblast, cell 1		421G0196 (C.11)	421G0196 (C.11)	2383	13.7	50	1430	2.0	50			
1.1	115A Ovary tumor		S7 Ovary 14		421G0196 (C.20)	421G0196 (C.11)	355	2.7	54	382	1.8	54			
1.10	261A Ovary tumor		S10 Skeletal muscle N		421G0196 (C.20)	421G0196 (C.11)	1290	6.9	51	707	1.9	51			
1.11	264A Ovary tumor		S2 Pancreas N		422A0628 (420)	421G0196 (C.11)	9590	44.0	62	1190	2.3	62			
1.12	306A		S40		422A0605 (420)	421G0196 (C.11)	516	3.8	50	619	2.0	50			
1.17	265A Ovary tumor		C15 Heart N		42200624 (420)	421G0196 (C.11)	2305	14.0	53	489	2.2	53			
1.4	S25 Ovary tumor		C4 Bone Marrow N		42200619 (420)	421G0196 (C.11)	531	3.5	53	743	2.0	53			
1.18			0		42200609 (420)	421G0196 (C.11)	1042	10.6	39	671	2.0	39			
1.9	S22 Ovary tumor		C19 Kidney N		42200627 (420)	421G0196 (C.11)	453	3.3	69	957	3.2	69			
1.12	9405.1.9		9405.5.9		42200602 (420)	421G0196 (C.11)	1082	12.2	57	594	2.3	57			
1.5	202A Ovary tumor		C10		422C0604 (420)	421G0196 (C.11)	1406	7.5	55	965	2.2	55			
1.1	S115		134A Lung Adenocarcinoma N		42200622 (420)	421G0196 (C.11)	509	3.4	51	533	2.0	51			
0.1	208A Ovary tumor		C110		422C0604 (420)	421G0196 (C.11)	701	4.5	54	651	2.1	54			
.2.1	201A Ovary tumor		S6 Stomach N		422A0625 (420)	421G0196 (C.11)	625	4.6	46	1335	3.6	46			
.0.0	S23 Ovary tumor		S36 Small Cell N		422G0120 (420)	421G0196 (C.11)	3896	22.2	50	502	2.2	50			
.1.0	205A		270A		422G00606 (420)	421G0196 (C.11)	2251	14.7	46	1256	2.0	46			
.1.6	9134		12		422H0601 (420)	421G0196 (C.11)	552	3.4	72	1029	2.3	72			
.5.6	305A Ovary 1		S91 Fetal tissue		422X0607 (420)	421G0196 (C.11)	6126	35.6	50	1449	2.0	50			
.3.5	203A Ovary tumor		S73 Breast 14		422H0623 (420)	421G0196 (C.11)	439	3.2	61	1531	3.4	61			
.3.3	302A		C119		422D0610 (420)	421G0196 (C.11)	367	3.2	50	1270	2.1	50			
.4.0	206A		S27		4225H003 (420)	421G0196 (C.11)	4242	22.2	58	663	2.0	58			

FIG. 3

TCGAGCGGCCGCCCCGGCAGGTCTTCAAGACTTGGACTGTGTACACTGCCAGGCTTCCAG
GGCTCCAACTTGCAGACGGCTGTTGTGGACAGTCTCTGAATCGCGAAAGCAACCATG
GAAGACCTGGGGAAAACACCATGGTTTATCCACCCCTGAGATCTTGAACAACCTTCATCT
CTCAGCGTGCAGAGGGAGGCTCTGGACTGGATAATTCTACCTCGGCCGACCAACGCT

TAGCGYGGTGCAGGGCCGAGGYCTGCTTYCTGTCCAGCCCAGGGCCTGTGGGGTCAGGGC
GGTGGGTGCAGATGGCATCCACTCCGGTGGCTTCCCCATCTTCTCTGGCCTGAGCAAGGT
CAGCCTGCAGCCAGAGTACAGAGGCCAACACTGGTGTCTTGAAACAAGGGCCTTACGAG
GCCCTGAAGGRCCCTCTGTAGTGTGAACCTCCTGGAGGCCAGGCCACATGTTCTCCTCAT
ACCGCAGGYTAGYGATGGTGAAGTTGAGGGTGAAATAGTATTMANGRAGATGGCTGGCA
RACCTGCCCGGGCGGCCGCTCSAAATCC

AGCGTGGTCGCGGCCGAGGTGTCTTCAGGGCTGCTTATGCCCTTGTCAAGAACACCAAG
TGTCAGCTCTGTACTCTGGTTGCAGACTGACCTTGCTCAGGCCTGAGAAGGATGGGCA
GCCACCAAGAGTGGATGCTGTGACCCATCGTCTGACCCAAAAGCCCTGGACTGGACA
GAGAGCGGCTGTACTGGAAGCTGAGCCAGCTGACCCACGGCATCACTGAGCTGGCCCCCT
ACACCCCTGGACAGGGACAGTCTCTATGTCAATGGTTTCAACCATCGGAGCTCTGTACCCAC
CACCAAGCACCGGGGTGGTCAGCGAGGAGCCATTCAACCTGCCCGGGCGGCCGCTCGA

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A

TTGGGGNTTGMAGCGGCCGCCCAGGTACCGGGGTGGTCAGCGAGGAGCCATTAC
ACTGAACCTCACCATCAACAACCTGCGGTATGAGGAGAACATGCAGCACCCCTGGCTCCAG
GAAGTTCAACACCACGGAGAGGGTCTTCAGGGCTGCTCAGGTCCCTGTTCAAGAGCAC
CAGTGTGGCCTCTGTACTCTGGCTGCAGACTGACTTTGCTCAGACTTGAGAAACATGGG
GCAGCCACTGGACTGGACGCCATCTGCACCCCTCCGCCTTGATCCCAGTGGCTGGACTGG
ACAGAGAGCGGCTATACTGGGAGCTGAGCCAGTCCTCTGGCGNGACNCCNCTT

B

AGCGTGGTGGCGGGCGAGGTCCAGTCGCAGCATGCTCTCTCTGCCACTGGCACAGTG
AGGAAGATCTCTGCTGTCACTGAGAAGGCTGTCACTGAGATGGCAGTCAAAGTGC
ATTTAATACACCTAACGTATCGAACATCATAGCTGGCCCAGGTTATCTCATATGTGCTCA
GAACACTTACAATAGCCTGCAGACCTGCCCGGGCGGGCTCGA

TGTGGTGTGAACCTCCTGGAGNCAGGGTACCCATGTCCTCCCCATACTGCAGGTTGGTG
ATGGTGAAGTTGAGGGTGAATGGTACCAAGGAGAGGGCAGCAGCCATAATTGTSRGCKG
SMGMSSGAGGMWGGWGTYYCWGAGGTTCYRARRTCCACTGTGGAGGTCCAGGAGTGCT
GGTGGTGGGACAGAGSTCYGATGGGTGAAACCATTGACATAGAGACTGTTCTGTCCAG
GGTGTAGGGGCCAGCTTYRATGYCATGGYCAGTTKGCTYAGCTCCCAGTACAGCCRC
TCTCKGYGGMGWCCAGSGCTTTGGGTCAAGATGATGGATGCAGATGGCATCCACTCCA
GTGGCTGCTCCATCCTCTGGACCTGAGAGAGGTCACTGCAGCCAGAGTACAGAGGG
CCAACACTGGTGTCTTGATAA

FIG. 8

TCGAGCGGCCGCCCCGGCAGGTCAAGGAAGCACATTGGTCTTAGAGGCCACTGCCTCCTGGA
TTCCACCTGTGCTGCGGACATCTCCAGGGAGTGCAGAAGGGAAGCAGGTCAAATGCTCA
GATCAGTCAGACTGGCTGTTCTCAGTTCTCACCTGAGCAAGGTCACTGCAGGCCAGAGTA
CAGAGGGCCAACACTGGTGTCTTGAAACAAGGGCTTGAGCAGACCTGCAGAACCTCTTC
CGTGGTGTGAACCTCCTGGAAACCAGGGTGTGCATGTTTCCTCATAATGCAAGGTTG
GTGATGG

Gene Name	Bait Probe 1 End Name	P1	P2 Name	GEM ID	Probe 2		Probe1 Value	Probe2 Value	S/B	A%	Probe2 Value
					Probe1 Value	Probe2 Value					
-1210188 [D9]	17.0 205A Ovary T'		170A Liver N	4.124M0d06	8620	1240	57.7	65	2.2	6.5	
-1210188 [D9]	17.9 S.1 Ovary Tumor		S.06 Spinal Cord N	4.124M0d06.26	5894	1002	35.3	89	3.9	89	
-1210188 [D9]	17.9 465A Ovary T'		S.91 Retinitis	4.12X0d07	12154	2121	54.4	71	2.8	71	
-1210188 [D9]	18.1 476A Ovary T' (not)		418A Aorta N	4.12X0d07.1	7487	1480	54.0	71	9.7	71	
-1210188 [D9]	18.5 561A Ovary Tumor		S.71 Heart N	4.124M0d07.1	7102	2116	39.2	64	4.5	64	
-1210188 [D9]	18.5 561A Ovary T' (not)		H.1 Colon N	4.124M0d09	1714	1114	20.4	64	2.6	84	
-1210188 [D9]	19.0 943A Ovary TSCN		I.2 Skin N	4.124M0d01	2445	814	12.1	75	2.1	75	
-1210188 [D9]	19.6 631A Ovary T' (not)		J.2A Dendritic cell	4.124M0d08	4578	1754	25.0	69	2.3	69	
-1210188 [D9]	20.2 261A Ovary Tumor		S.3 Pancreas N	4.124M0d09	7904	3596	46.5	81	5.6	81	
-1210188 [D9]	20.0 860A Ovary T'		S.10 Placenta (activated)	4.124M0d05	2191	1031	14.0	90	2.9	90	
-1210188 [D9]	20.0 9115 Ovary T' (not)		C.110 Small intestine	4.124M0d01	1979	971	10.4	80	2.7	80	
-1210188 [D9]	20.0 961A Ovary Tumor		C.15 Heart N	4.124M0d04	1914	964	13.9	94	4.4	94	
-1210188 [D9]	20.0 161A Ovary Tumor		S.7 Ovary N	4.124M0d06	1666	817	9.3	100	1.0	100	
-1210188 [D9]	20.0 479A Ovary T' (not)		214A Esophagus N	4.124M0d12	1827	1480	11.4	97	0.5	97	
-1210188 [D9]	21.6 361A Ovary Tumor		S.10 Selected muscle	4.124M0d11	8914	3634	30.4	86	6.0	86	
-1210188 [D9]	21.6 205A Ovary T'		S.7 Ovary N	4.124M0d03	2049	1224	11.9	30	2.6	30	
-1210188 [D9]	21.6 321A Ovary Tumor		C.19 Kidney N	4.124M0d07.1	1716	1072	11.0	92	4.0	92	
-1210188 [D9]	21.6 321A Ovary T'		9.185 5' Polarity T (S.1) Y0d02	4.204	3074	2140	94	7.7	94		
-1210188 [D9]	21.6 321A Ovary Tumor		11.1A Larynx larynx	4.124M0d22	9002	2104	16.6	89	4.0	89	
-1210188 [D9]	21.6 321A Ovary T'		C.11 Bone Marrow	4.124M0d19	1643	1297	9.6	90	4.4	90	
-1210188 [D9]	21.6 361A Ovary T'		11.1A Ovary N	4.124M0d14	2521	2084	22.0	65	24.9	65	
-1210188 [D9]	21.6 388A Ovary Tumor		C.119 Brain N	4.124M0d10	2072	1661	10.9	88	2.3	88	
-1210188 [D9]	21.6 391A Ovary Tumor		C.112 Lung N	4.124M0d23	1840	1474	10.7	87	3.8	87	
			S.6 Stomach N	4.124M0d20	1429	1204	9.4	90	3.5	90	

FIG. 10

Gene Name	Bal Probe 1 End Name	P1	P2 Name	Probe 2 GEM ID	Probe1		Probe2		Probe1		Probe2	
					Value	Value	S/B	A%	S/B	A%	S/B	A%
42100011 [C4]	16.8 385A Ovary T			S91 Fetal tissue	42X0607	26/11	1424	101.3	54	2.0	51	
42100011 [C4]	01.5 S21 Ovary Tumor			S36 Spinal Cord N	42X0628	13559	1479	65.3	68	1.9	68	
42100011 [C4]	01.1 476A Ovary T (not)			41SA Aorta N	42X0644	14125	1274	67.3	61	5.6	61	
42100011 [C4]	01.6 205A Ovary T			370A Liver N	42X0666	16121	1488	93.4	41	2.3	41	
42100011 [C4]	03.1 261A Ovary Tumor			S71 Rectal N	42X0624	14126	2235	38.2	68	4.4	68	
42100011 [C4]	01.6 361A Ovary T (not)			272A Pendine cell	42X0608	6584	1424	24.5	40	2.1	40	
42100011 [C4]	01.4 264A Ovary Tumor			S2 Pancreas N	42X0629	9865	2243	40.9	64	4.6	64	
42100011 [C4]	01.1 439A Ovary T (not)			66A Ovary N	42X0644	2804	648	22.6	60	7.4	60	
42100011 [C4]	01.2 361A Ovary Tumor			S10 Stomach muscle	42X0624	624	1949	39.5	68	4.6	68	
42100011 [C4]	01.6 511S Ovary T (not)			C710 Small intestine	42X0624	2284	607	11.6	60	2.1	60	
42100011 [C4]	01.5 265A Ovary Tumor			C75 Heart N	42X0624	4192	1294	19.2	68	4.0	68	
42100011 [C4]	01.4 529A Ovary Tumor			C79 Kidney N	42X0627	365	126	4.6	70	4.9	70	
42100011 [C4]	01.2 360A Ovary T			S7 Ovary N	42X0604	2714	1260	14.1	46	2.7	46	
42100011 [C4]	02.1 913A Ovary T (not)			15.9614	42X0601	1774	817	8.4	56	2.1	56	
42100011 [C4]	01.9 9485 1 P Ovary T C			9.085 P Ovary T (S	42X0602	6967	3726	41.5	70	9.2	70	
42100011 [C4]	01.6 361A Ovary T			C119 Brain N	42X0610	2114	1071	6.2	50	1.9	50	
42100011 [C4]	01.6 205A Ovary Tumor			C112 Lung N	42X0623	1657	1054	9.7	69	2.9	69	
42100011 [C4]	01.5 325 Ovary Tumor			C74 Bone Marrow	42X0619	848	1241	4.5	65	2.7	65	
42100011 [C4]	01.4 362A Ovary Tumor			311A Large Intest	42X0622	3171	2244	16.8	69	3.6	69	
42100011 [C4]	01.2 315A Ovary T			S10 PRMC (cervix	42X0605	630	541	4.2	53	1.9	53	
42100011 [C4]	01.0 201A Ovary Tumor			S7 Ovary N	42X0626	592	740	3.7	75	2.6	75	
42100011 [C4]	01.0 436A Ovary T (not)			56 Stomach N	42X0620	1197	1217	7.8	65	4.5	65	
42100011 [C4]	01.1 106A Ovary T (not)			211A Esophagus N	42X0612	784	797	4.5	95	2.4	95	
				11 Colon N	42X0609	3170	862	8.9	24	1.7	24	

FIG. 11

Gene Name	Blot Probe 1	Blot Name	P1	P2 Name	QEM ID	Probe 2 Value	Probe1 Value	Probe2 Value	Probe1 B/B	Probe2 B/B	Blot A%	Blot B%
4.2101082 [007]	16.7 426A Ovary Tissue			41DA Adult N	-422X0611	7706	462	46.3	75	4.5	4.5	
4.2101082 [007]	10.7 205A Ovary T.			21DA Liver N	-422Q0606	10171	950	61.2	.41	4.8	4.1	
4.2101082 [007]	10.0 385A Ovary T.			591 Fetal tissue	-422X0607	14115	1459	62.4	.48	2.2	4.6	
4.2101082 [007]	18.8 533A Ovary Tissue			876 Spinal Cord N	-422G0626	7761	880	47.3	.74	4.4	7.1	
4.2101082 [007]	16.3 161A Ovary Tissue			11 Colon R	-422B0609	1807	748	27.6	.47	2.2	4.7	
4.2101082 [007]	15.1 261A Ovary Tumor			57A Breast N	-422H0623	9815	1909	51.1	.74	4.2	7.1	
4.2101082 [007]	14.9 429A Ovary Tissue			10TA Ovary N	-422H0644	2661	541	20.3	.61	6.7	6.1	
4.2101082 [007]	14.8 261A Ovary Tumor			57P Pancreas N	-422N0629	7014	2274	38.8	.71	4.9	7.1	
4.2101082 [007]	12.9 335A Ovary Tumor			CF1 Bone Marrow	-422H0619	480	1175	3.5	.80	4.0	8.0	
4.2101082 [007]	12.8 261A Ovary Tumor			S10 Selected muscle	-422W0624	8994	1245	14.6	.69	5.1	6.9	
4.2101082 [007]	12.5 513A Ovary Tissue			CF10 Small intestine	-422C0604	1864	718	8.1	.67	2.2	6.7	
4.2101082 [007]	12.4 934A Ovary Tissue			D Skin IS	-422R0601	2552	1111	12.7	.41	2.6	4.1	
4.2101082 [007]	12.2 532A Ovary Tumor			C10 Kidney H	-422H0637	886	889	1.2	.69	1.4	6.9	
4.2101082 [007]	12.2 911A Ovary Tissue			77A Endothelial cell	-422H0608	1516	1867	18.7	.55	2.2	5.5	
4.2101082 [007]	12.1 912A Ovary T.			C10 Heart H	-422H0610	600	1120	4.2	.60	2.1	6.0	
4.2101082 [007]	11.9 913A Ovary Tissue			C13 Liver	-422C0604	2064	1080	14.6	.67	4.5	4.7	
4.2101082 [007]	11.8 261A Ovary T.			S7 Ovary N	-422H0603	1580	347	7.0	.56	2.1	3.8	
4.2101082 [007]	11.5 261A Ovary Tumor			14A Large Intest	-422A0622	2550	1651	13.2	.74	3.2	7.1	
4.2101082 [007]	11.4 360A Ovary T.			S10 Bladder	-422H0608	541	738	1.9	.62	2.2	6.2	
4.2101082 [007]	11.3 260A Ovary Tumor			CF11 Lung H	-422V0625	893	1120	5.4	.66	4.4	6.6	
4.2101082 [007]	11.1 335A Ovary Tumor			57A Ovary R	-422W0626	440	567	3.3	.60	2.2	6.0	
4.2101082 [007]	11.2 94851 P Ovary T.			91BS's Ovary T G	-422Y0602	4188	1529	21.6	.66	9.5	6.6	
4.2101082 [007]	11.1 428A Ovary Tissue			21A Uteroplacenta N	-422A0612	725	689	6.2	.65	2.8	6.5	
4.2101082 [007]	11.0 201A Ovary Tumor			56 Stomach H	-422W0620	1008	1018	7.4	.62	3.2	6.2	

FIG. 12

Gene Name	Bal Probe 1 Expr Name	P1	P2 Name	QEM ID	Probe 2 Value	Probe1 Value	B/B %	B/B %
-21V0189 (01)	44.2 426A Ovary Tissue	01 SA Author N	422X0611	8072	243	55.2	67	67
-21V0189 (01)	44.7 521 Ovary Tumor	SS6 Spinal Cord N	422X0626	7467	547	42.6	69	69
-21V0189 (01)	42.6 429A Ovary Tissue	61A Ovary N	422X0614	2850	227	21.7	64	64
-21V0189 (01)	48.0 82A Ovary T	S91 Fetal Brain	422X0607	11711	1469	54.0	58	58
-21V0189 (01)	47.1 261A Ovary Tumor	S73 Breast N	422X0623	6949	952	57.8	69	69
-21V0189 (01)	58.5 525 Ovary Tumor	C74 Bone Marrow	422X0619	208	1210	2.1	44	44
-21V0189 (01)	55.0 205A Ovary T	270A Liver N	422X0606	8676	1747	52.1	57	57
-21V0189 (01)	44.5 363A Ovary T Tissue	11 Colon N	422X0609	1449	707	17.4	57	57
-21V0189 (01)	44.4 361A Ovary Tumor	S10 Skeletal muscle	422X0621	6132	1443	29.4	77	77
-21V0189 (01)	44.2 361A Ovary Tumor	SM Pancreas N	422X0609	7612	1639	38.4	70	70
-21V0189 (01)	44.2 362A Ovary T	C119 Brain N	422X0610	4638	15038	3.4	60	60
-21V0189 (01)	42.9 944 Ovary T CSC N	10 Skin N	422X0601	2500	860	12.4	51	51
-21V0189 (01)	42.5 5145 Ovary T Tissue	C710 Small intestine	422X0601	1424	569	6.7	21	21
-21V0189 (01)	42.4 363A Ovary Tumor	C73 Heart N	422X0604	1742	724	11.8	70	70
-21V0189 (01)	42.4 363A Ovary T Tissue	272A Endothelial cells	422X0608	3084	1442	17.0	62	62
-21V0189 (01)	41.9 266A Ovary T	S27 Ovary N	422X0604	1170	742	8.0	47	47
-21V0189 (01)	41.9 366A Ovary T	S10 PRMC Activated	422X0605	307	580	2.6	41	41
-21V0189 (01)	41.7 261A Ovary Tumor	A11A Large Intest N	422X0622	2097	1202	11.2	86	86
-21V0189 (01)	41.3 125A Ovary Tumor	ST Ovary N	422X0626	474	470	2.9	47	47
-21V0189 (01)	41.1 282A Ovary Tumor	C712 Lung N	422X0625	969	1094	5.6	72	72
-21V0189 (01)	41.1 301A Ovary Tumor	SG Stomach N	422X0630	750	672	5.6	62	62
-21V0189 (01)	41.1 328A Ovary T Tissue	241A Esophagus N	422X0612	498	446	4.2	74	74
-21V0189 (01)	40.9 3851 P Ovary T G	9035 S P Ovary T G	422X0602	3117	3174	16.7	91	91
-21V0189 (01)	322 Ovary Tumor	C19 Kidney N	422X0627	224	409	2.3	48	48

FIG. 13

Gene Name	Ball Probe 1	Ball Probe 2	Gene Name	Ball Probe 1	Ball Probe 2	Gene Name	Ball Probe 1	Ball Probe 2	Gene Name	Ball Probe 1	Ball Probe 2
Name	Expr Name	P1	Name	P2	Name	Name	P1	P2	Name	P1	P2
42110087 [611]	120.2 476A Ovary Tissue	S10A	4110A Adrenal N	422X0611	5441	270	36.3	50	2.1	30	
42110087 [611]	100.0 S23A Ovary Tumor	S26	Stomach Gland N	422X0628	5448	5311	27.1	56	2.1	30	
42110087 [611]	0.1 479A Ovary Tissue	164A	Ovary F1	422X0644	1252	150	10.1	58	2.5	38	
42110087 [611]	0.7 935A Ovary T	S91	Fetal tissue	422X0607	9507	1668	35.8	45	2.1	45	
42110087 [611]	0.1 935A Ovary T	270A	Liver F1	422X0606	5156	1245	31.1	50	2.0	30	
42110087 [611]	0.1 2 365A Ovary Tumor	C73	Heart F1	422X0624	1831	418	11.9	48	2.0	38	
42110087 [611]	0.1 4 365A Ovary T	C719	Brain N	422X0610	409	1259	2.6	48	2.0	38	
42110087 [611]	0.1 6 365A Ovary Tumor	S10	Stomach mucosa	422X0621	1713	1036	17.7	55	2.1	35	
42110087 [611]	0.1 7 315A Ovary Tissue	S71	Bladder N	422X0634	4164	1249	21.0	62	1.0	62	
42110087 [611]	0.1 7 315A Ovary Tissue	C710	Small intestine	422X0601	1860	627	8.6	47	2.1	47	
42110087 [611]	0.1 7 361A Ovary Tumor	S7	Pancreas F1	422X0609	4938	1640	14.9	60	1.0	60	
42110087 [611]	0.1 7 361A Ovary Tissue	37A	Esophagus epith.	422X0608	2667	1270	14.4	44	1.0	44	
42110087 [611]	0.1 7 365A Ovary T	C719	Kidney F1	422X0627	291	605	2.4	51	2.5	51	
42110087 [611]	0.1 6 944A Ovary Tissue	S70	PROK2 (activ)	422X0605	410	687	3.2	47	2.0	47	
42110087 [611]	0.1 5 262A Ovary Tumor	C7	Skin F1	422X0601	1622	984	7.9	44	2.2	44	
42110087 [611]	1.5 283A Ovary Tumor	411A	Large Intest	422X0622	1892	1245	10.4	50	2.6	50	
42110087 [611]	0.1 123A Ovary Tissue	C712	Uterus F1	422X0625	601	908	4.4	62	2.6	62	
42110087 [611]	0.1 4 46A Ovary Tumor	414A	Esophagus F1	422X0612	216	325	2.7	78	1.9	78	
42110087 [611]	0.2 201A Ovary Tumor	422	90626	382	501	2.9	38	2.0	38		
42110087 [611]	0.1 0 945A Ovary Tissue	S6	Stomach N	422X0640	558	677	4.2	58	2.1	58	
42110087 [611]	BRCA Ovary Tissue	9485	S P Ovary T (S-P)Y0602	2882	2493	15.1	57	6.1	57		
42110087 [611]	266A Ovary T	11	Colon F1	422X0609	2261	562	12.5	36	1.7	38	
42110087 [611]	S27 Ovary F1	S27	Ovary F1	422X0603	1739	965	9.7	36	2.2	36	
42110087 [611]	C71 Bone Marrow	422	Bone Marrow	422X0619	263	845	2.2	44	2.2	44	

FIG. 14

11721-1

ACGGTTCAATGGACACTTTATTGTTACTTAATGGATCATCAATTGTCTCACTACCTA
 CAAATGGAATTTCATCTTGTTCATGCTGAGTAGTGAAACAGTGACAAAGCTAACATAA
 TAACCTACATCAAAGAGAACTAAGCTAACACTGCTCACTTCTTTAACAGGCAAATA
 TAAATATATGCACACTAATGCACAATTGGTTAGTCACAAAAAAATCAAATGGGATCTT
 GAAGAATGTATGCAAATCCAGGGTGCAGTGAGATGAGCTGAGATGCTGTGCAACTGTT
 AAGGGTCTGGCACTGCATCTTGGCAGTAGCTGAATCTGACATGGAAGGTTTAGC
 TAATGCCAAGTGGAGATGCAAGAAATGCTAAGTGACTTAGGGCTGTGACAGGAACCTA
 AAAGGCAGGAAAGTACTAAATATTGCTGAGAGCATCCACCCCCAGTGCTCACATGGCTGACTTATCCTCCGTGTT
 CATTGGCACAGCAAGTGGCAGTG

11721-2

AAGGCTGGTGGGTTTTGATCTGCTGGAGAACCTCGCTTCATGTGGAGGAAGAAGGG
 AAGGGAAAAGATGCTCTGGAAACAAGGTTAACAGCCGAGCAGCAAATAGAAGCTTTC
 CGAGCTTCACTTCCAAGCTAGGGATGTCATGTCATGATGCTTGGCACTGCTCACA
 GAGCCCACAGCTCATGGTAGGAGTCATCTGCCACAGAAGGCTGGTGGGTTTTGATGA
 AGAAGGAGCTGAACACTTGCACAGGCTTGGAGAGCCCAGAGCGACCCCTCTGGCCA
 TCCTGGCGGAGCTAAAGTGCACACAAGATCCAGCTCATCAATAATATGCTGGACAAAG
 TCAATGAGATGATTATTGCTGGAAATGGCTTACCTCCCTAACGGTGTCAACAAACAT
 GGAGATTGGCACTTCTGTTGATCAACAGGGAGCCAAGATTGTCAAAGACCTAATGTCC
 AAAGCTGACAAGAATGGTGTCAACATTACCTTCCTGTTGACTTGTCACTGCTGACAAGT
 TTGATGA

11724-1

TTCGTTCCATACATTCTAAAGAGTTACTTAAATCAGTCAACTGGCTTGTGAGACTCTTA
 AGTCTGATTCACACTTAGCTAAATTCTGAGAACTGTGGTATAGGTGGCGTGTCTCTTC
 TAGCTGGACAAAAGTTCTTGTTTCCCTGAGAGTATCACAGACCTCTGCTGAAGC
 TGGACCTCTGCTGGCCTGGACTCCAAATCTGTTGTATGTTCAAGGCTGGAAATGTT
 AAATCTTAAATTCTCCATATGGATGGACATCTGCTAAAGTTGATCCTTAAAGAACACTGCAAT
 TATCTTCTTGTGAGCTAAATTCTCTCTTGTGCTTGAATGGCATCCTAAACTTCCCTCTCCC
 ATTTCTTAGCTTCACTCATCACCCCTGTCACGATCATCTGGAGGGAAAGACATGCTTTAGTA
 AAGGCTGCAAGCTGGTCACACTACTGTCCAAGTTCTGAAAGTTGCTGAACTTCCCTGT
 CTTCCTGTTCAAAGTAAACCTGAATCTCTCAATTGTCTTCCAAGTGGACTTTCTCTGC
 GCAAAGCATCCAG

11724-2

TCATTGCGCTGTGATGCCATCTGGAATGTGATGAGCAGCCACGAACCTGTAGATTCA
 ATCAAAGGATTACCATCTGGTGGAAAGCTGTGAGGAAGAGAAACAAGAACTGTATGGCA
 AGTTAAGAACAGAGGCAAAACAAGAAGGAGACAGAAAAGCAGTTGCTAAATCTAAACAGCAGAA
 CAAGAAATGGAGGAAATGAAAGAAGATGAGAAAGCTTGTAAATCTAAACAGCAGAA
 AATCCTAGAGCTGGAAAGAAGAGAAATGACCGCGCTTAGGGCAGAGGGTGCACCTGCAGGAG
 ATACAGCTAAAGAGCTATGGAAACACTTCTTCTTCAATGCCACCATGAGGAAGAAC
 TTGAAAGGGTCAAAATGGAGTATGAAACCTTCTAAGAAGTTGCTTAAATGTCTGA
 GAGAGACTCTAAGTGAAGAGGTTCAAGATTAAAGCATCAGATAGAAGGTAATGTATC
 TAAACAAGCTAACCTAGAGGCCACCGAGAAACATGATAACCAAAACGAATGTCACTGAAAGA
 GGGAAACACAGTCTATACCAGT

FIG. 15.4

11725-32-1&2

AAGCCAATAATCACCATTTACTTAATATATGCCAACCAACTGTACTTGGCAGTTACAA
 ATTCTCACCGTTACAACAACCCCATGAGGTATTATCCCCATTCTATAGATAGGGAAACCA
 CAGCTCAAGTAAGTTAGGAAACTGAGCCAAGTATAACACAGAACATACGAAGTGGCAAAACTA
 GAAGGAAAGACTGACACTGCTATCTGCTGGCCTCCAGTGTCTGGCTCTTCACACGGGTT
 CAATGTCTCCAGCGCTGCTGCTGCTGCATTACCATGCCCTCATGTTTCTTCCTCTG
 GTGTTCAACTGCATCCTCAAAGAACTAACTCATTCCAGAGACCACCTATTCTCTCTC
 TTTCTGAAATTACTTTAATAATTCTCATGAGGGGGAAAAGAAGATGCCTGTTGGTAGTT
 TTGTTGTTAAGCTGCTCAATTGGGACTTAAACAATTGTTCTACCTTGACATCCTGTA
 ACAGCTGTGTTTGCTAGAAAGATCACTCTCCCTCTTCTAGCATGGCTCTAACCTCTTC
 AATTCACTTCTTTCTTCACACAACTCAAGTTCTCAAACATCTGATGAGAGAGGC
 CTCTTCAAGTTATGTTGTGCTACTCTGAAACATGTTGCTTTAAAGATTCAATTCTCTG
 AAGATCCTGTAACCACTTCCCTGATTGGCTAGGTCTTCTCTTCTTCCAAAACAGCT
 TCATGGTATTCACTGTTCTCTTCTTCAATAAGTTCAAGGAGCTCAGAAC

11726-1&2

CAAGCTTTTTTTTTTTAAAAACTGTTAGCATTAAATGTTTATTGTCACGCAGATGGCA
 ACTGGGTTATGTCCTCATATTATAATTGTAATTAAAAAAATTACAAGTTTAAATA
 GCCAATGGCTGGTTATATTCAAGAAACATGATTAGACTAATTCAATTATGGTGGCTTCA
 AGCTTTCTTATTGGCTCCAGAAAATTCAACCCACCTTTGTCCTTCTTAAAAAACTGGAA
 TGTTGGCATGCATTGACTTCACACTCTGAACCAACATCCTGACAGTCATCCACATCTACTT
 CAAGGAATATCACGTTGGAATACTTTTCAAGAGAGGGAAATGAAAGAAAGGTTGATCATT
 TGCAAGGCCACACCCACCTGGCTGAGAAGTCAACTACTACAAAGTTATCACCTGCAGCGTC
 CAAGGCTTCTGAAAACCACTTCTGCTCGATCTGCTTCAACCATCTGGCTGCTGGAGTCT
 GACGAGCGGCTGTAACGACCGATGCCAAATGCACTCAAAGCACCAACAGAGCTCAAGA
 CTCCCTGCTGGCTTGAATTGGATCCGATATGCCCATGGCT

11727-1&2

AAGTGTAGCATTAAATGTTTATTGTCACGCAGATGGCAACTGGGTTATGTCCTCATATT
 TATAATTGTAATTAAAAAAATTCAAGTTTAAATAGCCAATGGCTGGTTATATTTC
 AGAAAACATGATTAGACTAATTCAATTGTCCTGCTTCAAGCTTTCTTATTGCTCCAG
 AAAATTCAACCCACCTTTGTCCTTCTTAAAAAACTGGAATGTTGGCATGCATTGACTTC
 CACTCTGAAGCAACATCCTGACAGTCATCCACATCTACTTCAGGAATATCACGTTGGAAT
 ACTTTTCAAGAGAGGGAAATGAAAGAAAGCCTGATCATTGCAAGGCCACACCGTGG
 CTGAGAAGTCAACTACTACAAAGTTATCACCTGCAGCGTCCAAGGCTTCTGAAAGGAGT
 CTGGCTCTGATCTGCTTCAACCATCTGGCTGCTGGAGTCTGACGAGCGGCTGTAAGGACC
 GATGGAATGGATCCAAGCACCAACAGAGCTCAAGACTCGCTGCTGGCATGAATT
 GGATCCGA

11728.1.40.19.19

TACAAACTTTATTGAAACGCACACGGCGCACACACACAAACACCCCTGTGGATAGGGAAAA
 GCACCTGGCCACAGGGTCCACTGAACAGGGAGGGATGGCAGCTTGTAAATGTGGCTTT
 GCCACAACCCCTCTGACAGGGAGGCCCTAGATTGAGGGCCCCACCTCCCAGGTGATGG
 GGAGCTCAGAATGGGTCCAGGGAGAATTGGTAGGGGGAGGTGCTAGGGAGGCATGA
 GCAGAGGGCACCCCTCCGACTGGGTCGGAGGGCTGCAGAGTCTCAGTACTGTCCCTCAC
 AGCAGCTGTCTCAAGGCTGGTCCCTCAAAGGGCGTCCCAGCGCGGGCCTCCCTGCGC
 AAACACTTGGTACCCCTGGCTGCGCAGCGGAAGCCAGCAGGACAGCAGTGGCGCCGATCA
 GCACAACAGACGCCCTGGCGTAGGGACAGCAGGCCAGCCCTGTCGGTTGTCTGGCAG
 CAGGTCTGGTTATCATGGCAGAAGTGTCTTCCACACTCACGTCTTACACCCACGTG
 AXGGCTACXGGCCAGGAAG

11728.2.40.19.19

CCCGTGGGTGCCATCCACGGAGTTTACCTGATCTTGAGCAGGATCGCCCGTCTGCA
 CTGCACTGGAAGCCCCGTGGGCAGCACTGATGCCATCCCCGATGCCACGGCCCTCTGGG
 AAGGGGCAGCACTGGAAGTCCCTGAGACGGTAAGAGATGCAGGAGTGGCCGGCAGAGCA
 GTGGGCATCAACCTGGCAGGGCCACCCAGATGCCTGCTAGTGTGTGGGCCATTGTCC
 AGAAGGGGACGGCAGCAGCTGTAGCTGGCTCCTCCGGGTCAGGCAGCAGGCCACAGGG
 CAGAAGTGCACCATCTGGCACCAGCGTCCAGCCACCAGCCCTGCTTTAAGGCACCCAGC
 TCACCAAGGGTCCACATGGTCTGCTGCTCCAGTCCGCTCTGGCCCTGATGGTTC
 TACCTGCTGTGAGCTGCCAGTGGGAAGTATGGTCTGCTGCCAATGCCAACGCCACCTGCT
 GCTCCGATCACCTGCACTGCTGCCCAAGACACTGTGTGACCTGATCCAGAGTAAGTGC
 CTCTCCAAGGAGAACG

11730-1

GAATCACCTTTCTGGTTAGCTAGTACTTTGTACAGAACAAATGAGGTTCCCACAGCGGAG
 TCTCCCTGGCTCTGTTGGCTCTCGTAAGGCAGGCCTACACCTTTCTCTCTATGG
 AGAGGGGAATATGCAATTAGGTGAAAGTCACCTTCAAAGTGAAGAAAGGATTGATT
 GCTGCTTCAGGACTGTGAATTATTCGAATGTTTACAAATGCTTGTACAAAACAACA
 AAAAGGTAAATTACA.AAAATGTGTACATCACAACATGCTTTTAAAGACATTATGCAATTGTGC
 TCACATTCCCTTAAATGTTGTTCAAAGGTGCTCAGCCTCTAGCCCAGCTGGATTCTCCGG
 GAAGAGGCAGAGACACTTGGCAGAAAAGACACAGGGAGGAGGGGTGGTGAAGGA
 GAAAGCAGCTTCCAGTTAAAGATCAGCCCTCAGTTAAAGGTGAGCTTCCCGCAAGCTGGC
 CTCAXCGGGAGTCTGGTCAGAGGGAGGAGCAGCAGGCTGGACTGGGGCGT

11730-2

AACCGGAGCGCGAGCAGTAGCTGGTGGCCACCATGGCTGGGATCACCAACCATCGAGGGCG
 GTGAAGCGCAAGATCCAGGTTCTGCAGCAGCAGGAGCTGAAGAGGAGCGAGCTGA
 GCGCCTCCAGCGAGAAGTGGAGGGAGAAGCCCGCCCGGGAACAGGCTGAGGCTGAGG
 TGGCCTCTTGAACCGTAGGATCCAGCTGGTGAAGAAGAGCTGGACCGTGCTCAGGAGC
 GCCTGGCCACTGCCCTGCACAAACCTGAGAAGCTGAAAGAGCTGCTGATGAGAGTGAGA
 GAGGTATGAAAGGTTATTGAAACCGGGCTTAAAGATGAAAGAAAGATGGAACATCCAG
 GAAATCCAACCTCAAAGAAGCTAAGCACAATTGAGAAGAGGGAGATAGGAAGTATGAAAGA
 GGTGGCTCGTAAGTGGTGAATGAAAGGAGACTTGGAACCCACAGAGGAACGAGCTGA
 GCTGGCAGAGTCCCGTTGCCAGAGATGAGGAGATTAGACTGATGGACCAGAACCT
 GAAGTGTCTGAGTGC

FIG. 15C

11732.1 contig

GAGAACTTGGCCTTATTGTGGGCCAGGAGGGCACAAAGGTCAAGGAGGCCAAGGGAGG
 GATCTGGTTTCTGGATAGCCAGGTCAAGCATGGTATCACTAGTAGGAATCCGCTGTAGCTG
 CACAGGCCTCACTTGCTGCAGTCCGGGAGAACACCTGCAGTCATGGCGTTGATGACCT
 CGTGGTACACGACAGGCCATTGGTGCAGTGCAGGGCACGCCATGGCTCCGTCCCTCG
 AGGGCAGGCAGCAGGAGCATTGCTCCTGCACATCCTCGATGTCAATGGAGTACACAGCTT
 TGCTGGCACACTTCCCTGGCAGTAATGAATGTCCACTTCCCTGGGACTTACAATCTCCC
 ACTTTGATGTACTGCACCTTGCTGTGATGTCTTGCAATCAGGCTCCACATGTGTCACA
 GCAGGTGCCTGGAATTTCACGATTTCGCCTCCTCAGGCAGACACTTGTGTTCATCAAATG
 GTGGGCAGCCGTGACCCCTCTCCAGATGTACTCTCCTCT

11732.2 contig

GCCTGGACCTTGGCGGATCACTGCCACACAGTCACTTGCTTGGCAAATGGCCAGACCTTGC
 TCGAGAGTCATCGTGTCAATTGTGACCATTGGACCCGGCCTTCATGTGCCAACAGCCAGTC
 TCCCTGGTGGGGAGACGTGTGGCTGCCGCTGGACCTGCCCTTGTGTGTCACGGGC
 AGTTCCACTCGGCACATCGTCACTTCGAATGGGAGAACATTCAAGCTTACTGGTAGCTGCT
 CCTATGTCACTTTCAAACAAAGGAGCAGGACCTGGAAGTGTCTCCTCCACAATGGGGCCTG
 CAGCCCCGGGCAAAACAAAGCTGCAATGAAAGTCCATTGAGATTAAGCATGCTGGCGTCTC
 TGCTGAGCTGCACAGTAACATGGAGATGGCAGTGGATGGGAGACTGGCCTTGGCCCGTA
 CGTGGTCAAAACATGGAACCTACCCATCTACGGCGCTATCATGTATGAAGTCACGTTACC
 CATCTTGGCCACATCCTCACATACACCCCKCAAAACAAACGAGTT

11735-1-2

AGATCAACCTCTGCTGGTCAGGAGGAATGGCTTCCATTGTCTTGGATCTTGTCTTGCAGTT
 TCGATAGTRWCAzCTKKRYTSRAMSKMIAAGKGYRATGRWMTTKSYWGWRASYKTMWWMM
 RSGRARAYTTzGzCAYCCCMCCCTWzAGCGSAGKACCARGTGCAGGTGGACTCTTCTG
 GATTTGTACTCAGACAGGCTGGTCCATCTTCCAGCTGTTTCCAGCAGAACAGATCAACCTC
 TGCTGATCAGGAGGCATGGCTTCTTATCTTGGATCTTGCCTTGACATCTCGATGGTGTG
 ACTGGGCTTACCTCGAGGCTGATGGTCTTACCACTCAGGCTTCCAGGAAGATYTGCATC
 CCACCTCTGAGACGGGACCCAGGTGCAGGGTGTGACTCTTCTGGATGTTGTAGTCAGACA
 GGGTGCYCCATCTTCCAGCTGTTCCAGCAAAACATCAACCTCTGCTGGTCAAGGAGRAT
 GCCTTCTTGTCTGCTGATCTTGTCTGACRTTCTCRATGGTGTCACTGGCTCCACTTCGA
 GAGTGAATGGTCTTACCACTCAGGCTTCAAGAAGATCTGCATCCCACCTCTAA

11740.1 contig

AAGTCACAAAACAGACAAAGATTATTACCACTGCAAGCTATATTAGAACGTCACGAAGA
 GACAGAGGTCACTGATCTGAGATGATGGAGACCTCAAGCTCGAATTACATCTTACAAG
 AGGAGCTGAAGCATCTCAAAACATAATCTGAAAGAACGAGAGAACAGAAAAGAGGGCT
 CAAGACATGCTTAATCACTCAGAAACGAAAGAACATAATTAGAGATAGATTTAAACTAC
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 GCTCGTTAACTGACAACATCAATCTATTGAAAGAGGCCAAAGTCTGTGGCAATGTGTGAG
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11765.2&64.2.contig

CGCCTCCACCATGTCCATCAGGGTACCCAGAAGTCCTACAAGGTGTCACCTCTGGCCCC
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 TCTCCCAGTGGCAGCAGCAACTTTCGCGGTGGCCTGGCGGGCTATGGTGGGGCCA
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 ATGACCTGCGGCGCACAAGACTGAGATCTCTGAGATGAACCCGAAACATCAGCCGGCT
 XCAGGCTGAGATTGAGGGCCTCAAAGGCCAGAXGGCTTXCTGGAXGXCCGGCAT

11767.2.contig

CCCGGAGCCACCCAAACGAGCGGAAAATGGCAGACAATTTCGCTCCATGATGCGTTATCT
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 TACAAAGCTGGATAAA

11768-1&2

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 GCTGTTTCCCAGCAAAGATCAACCT

11768-1&2-11735-1&2

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11769.1.contig

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 CTCCACTTCTGGGTTCAAGCGATCCTCTGCCTCAGCCTCCGAGTAGCTGGGACTACAG
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 TGGAGAAGGGCCAGGATTCTTACGTT

11769.2.contig

ACCGCGGTCTCCGGGGGAGAAAGCTGAAGGTGATGTGGCCGCCCTCAACCGACGGCATC
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11770.1.contig

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 ACAGTCCCAGAGGTGATATCAAGGGCT

FIG. 15F

11770.1.contig

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 GCCCTCGTCATCATCA

11773.1.contig

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 TACAGGCCATGCTTGTACAGTTG

11778.1.contig

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 TCCATTCTGTAAGCAAGTGTGAAGGG

11778.2&30-2

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11782.1.contig

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11782.2.contig

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11783-1 & 2

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11786.1.contig

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11786.2.contig

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13691.1&2

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13692.1&2

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13693.2

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13696.1-13744.1

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13700.1

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13700.2

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13701.1

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 CAGACTCAGGGTGTTCATTCTTGGCAAGGCTGGTCTCTTCCCCCTCCCAACCCCTTGATCCCTT
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13701.2

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13702.2

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 TCCAATAAAACGGTTTACCTACCT

13704.2-13740.2

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 AGGAAAAGTTAAA

13706.1

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13706.2

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13707.3

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13710.2

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13710-1

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13711.1

TCCAGACATGCTCCTGTCTAGCCCCGGGACCAACGACCTGCTATGGGAAGCAGAA
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13711.2

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13713.1&2

TCACTTTATTTTCTTGTATAAAAACCTATGTTGTAGCCACAGCTGGAGCCTGAGTCCGCT
 GCACGGAGACTCTGGTGTGGCTTGAAGGGTGGTCAGTGAACCTCTGATAGGGAGACT
 TGGTGAATAACAGTCTCCTTCCAGAGGTGGGGGTCAAGGTAGCTGTAGGTCTTAGAAATGGC
 ATCAAAGGTGGCCTTGGCGAAGTGGCCAGGGTGGCAGTGCAGCCCCGGGCTGAGGTGTA
 GCAGTCATCGATACCAGCCATCATGAG

13715.4

CTGGAATATAGACCCGTGATCGACAAAAACTTGAACGAGGCTGACTGTGCCACCGTCCC
 CAGCCATTGGCTCCTACTGATGAGACAAAGATGTGGTGAATGACAGAAATCAGCTTTGTAATT
 ATGTATAATAGCTCATGGCATGTGTCCTGATGTCATAACTGCTTCAACCGCTTCTGCACCTG
 GGAAGAAGGAGTACATTGAAGGGAGATGGCACCTAGTGGCTGGAGCTTGGCAGGAACC
 CAGTGGCCAGGGAGCGTGGCACCTTACCTTGTCCCTGCTTCATTCTTGTGAGATGATAAA
 ACTGGGCACAGCTTTAAATAAATATAATGAACA

13717.1&2

TGAATGGGGACCGAGCTGACCCACGAAATGGAGCTTGNGGAGACCAAGGCTGCAGGGGAT
 GGAACCTTCCAGAAAGTGGCATTCTGTGGTGGCTTGGGAAGGAGCAGAAAGTACACA
 TGCCATGTGAAACATGAGGGCTGGCTTGGGAAGGAGCAGAAAGTACACA
 CCTCCCTTCATCCACCAAGACTAACACAGTAATCATGGCTGTCCGGTTGTCTTGGAGCTGT
 GGTCACTCTTGGAGCTGTGATGGCTTGTGATGAGAGGAGGAGAAACACAGGTGGAAA
 AGGAGGGGAGTATGCTCTGGCTCAGGCTCCAGAGCTCTGATATGTCTCTCCAGATTGT
 AAAGTGTGAAGACAGCTGCTGGACTTGGTGAAGACAAATGTCTTCACACATCTCC
 TGTGACATCCAGAGACCTCAAGTCTCTTACTCAAGTGTGATGTTCCCTGTGAGTCTGG
 GGCTCAAGTGAAGAACTGTGGAGCCCCAGTCCACCCCTGCACACCAGGACCCATCCCTG
 CACTCCCTGTGTTCCCTTCCACAGCCAACCTTGTGCTCCAGCCAACATTGGTGGACAT
 CTGCAGGCTGTGAGCTCATGCTACCTGACCTCAACTCCTCACTTCCACACTGAGAATA
 ATAATTGAAATGTGGGTGGCTGGAGAGATGGCTCAGGCTGACTGCTTCCAAAGGTCT
 GAGTTCAAAATCCCAGCAACCACATGGTGGCTACAACCATCTGTAATGGGATCTAATACCC
 TCTTCTGCACTGCTGAAAGACASCTACAGTGTACTTACATATAATAATAAG

FIG. 15M

13719.1&2

GGCCGGGCGCGCGCCCCGCCACACGCACGCCGGCGGCCAGTTATAAAGGGAGAG
 AGCAAGCAGCGAGTCTTGAAGCTCTGTTGGTGTGATCCATTTCATCGGTCTTAC
 AGCCGCTCGTCAGACTCCAGCAGCCAAGATGGTGAAGCAGATCGAGAGCAAGACTGCTT
 TCAGGAAGCTTGGACCGCTGAGGTGATAAAACTTGAGTAGTTGACTTCTCAGCCACGTGG
 TGTTGGCCTTGCAAATGATCAAGCCTTCTTCATTCCCTCTGAAAAGTATTCCAACGT
 GATATTCCCTGAAGTAGATGTGGATGACTGTCAAGGATGTTGCTTCAGAGTGTGAAGTCAA
 TGCATGCCAACATTCCAGTTTAAAGAAGGGACAAAAGGGGGTAATTCTGGAGCCA
 ATAAGGAAAAGCTTGAAGCCACCATTATGAATTAGTCTAATCATGTTCTGAAAATATA
 ACCAGCCATTGGCTATTAAAACCTTGTAAATTAAATTACAAAAATATAAAAATATGAA
 GACATAAAACCCMGTGCCATCTCGTACAATAAAACATTAATGCTAACACTT

13721.1

TCACATAAGAAAATTAAAGCAAGTACRCTATCTTAAAAAACACAACGAATGCATTAAATA
 GAGAAACCCCTTCCCTCCCTCCACCTCCCTCCCCACCCCTCCTCATGAATTAGAAATCTAAG
 AGAAGAAGTAACCATAAAACCAAGTTTGCGAACATCCATCATCCAGAGTGTGCTTACATGGT
 GATTAGGTTAATATTGCTTCTACAAAAATTCTATTAAATACACCTTGATTG
 CTTATTACAAAAAATTCACTACAAAAGTTCAATATATTGAAAATGCTTCCCTCCCT
 CACAGCACCGTTTATATATAGCACAGAATAATGAAGAGATTGCTAGTCTAGATGGGGCA
 ATCTCAAAATTACACCAAGACGCACACTGGTTATTACCCCTCCCTCTCATATAAG

13721.2

GGAAAGGATTCAAGAATTAGACCGACTTGGCTTGCCTRAGAAAAAGACAACACTCTCGTCGCAT
 GCTGACAGACAAAGAGAGAGAGATGGCGAAAATAACGGATCAAATGCAGCAACACCTGA
 ATGACTATGAAACAGCTTCTGATGTAAGCTTACGGCTGGACATGGAAATCACTGCTTACAG
 GAAACTCTTAGAAGGCGAAGAACAGAGAGGTTGAAGCTGTCTCCAAGCCCTTCTCCGTGT
 GACAGTATCCCAGGATCCTCAAGTGTACTGTTACCGTACAACCTAGAGGAAAGCGGAAGA
 GGTTGATGTGGAAGAATCAGAGCGGAACCTAGTAGTGTAGCATCTCTCATTCGCTCAA
 CCACGGAAATGTTGCATCGAACAAAATTGATGTTGATGGAAATTATCCCGCTTGAAGA
 ACACCTCTGAACAGGATCAACCAAATGCCAAGGCTGGGAGATGATCAGAAAGAAAATTGGAGA
 CACATCACTCACTATAAAATACCTCAA

13723.1

CATGGGTTTCAACCAGGTGGCCAGGCTGCTTGAACTSCTGACCTCAGGTGATCCACCCG
 CCTCGGCCTCCAAAGTGTCTGGATTACAGGCCTGAGCCACCACCCCTGGCCCCCAAAGC
 TGTTCTTTGTCTTCTAGCGTAAGCTCTCTGCCATGCAGTATCTACATAACTGACGTGAC
 TGCCAGCAAGCTCACTCACTCCGTGGCTTCTCTCTCTCTCTCTCAAG
 TTCTGCCTCAGTGAAGCTGCAGGTCCCCAGTTAAGTGTACAGGTGAGGGTTCTTGAACC
 TGGTTCTATCAGTCGAATTAACTCTCATGATGG

13723.2

GATGTGTTGGACCCCTGTGTCAAAAAAAAACCTCACAAAAGAATCCCTGCTCATTACAGAA
 GAAGATGCA~~T~~AAAATATGGGTTATTTCAACTTTTATCTGAGGACAAGTATCCATTAA
 TTATTGTGTCAGAACAGAGATTGAATACCTGCTTAAGAACGCTTACAGAACGCTATGGGAGGAG
 GTTGGCAGCAAGAACAA~~T~~TTGAACATTATAAAATCAACTTGATGACAGTAAAAATGGCC
 TTTCTGCATGGGAACCTTATTGAGCTTATGGAATGGACAGTTAGCAAAGGCATGGACCG
 GCAGACTGTGCTATGGCAATTAA~~T~~GAAGTCTTAA~~T~~GAACCTTATTAGATGTGTTAAAG
 CAGGGTTACATGATGAAAAAGGGCCACAGACGGAAAAACTGGACTGA~~A~~AGATGGTTGTA
 CTAAAACCCAACATAATTCTTACTATGTGAGTGAGGATCTGAAGGATAAGAAAGGAGAC
 ATTCTCTGGATGAAAATTGCTGTAGAAGTCCTTGCCTGACAAAAGATGGAAAGAAAT
 GCCTTTT

13725.1

GA~~C~~CTGGTTCTTATTTCAAAAAGACACTTGTCAATATTCA~~G~~TRTC~~A~~AAACAGT~~T~~GC~~A~~CTATT
 GATTCTCTTCTCCC~~A~~ATCGGCC~~C~~AAAGAGACCACATAAAAGGAGAGTACATT~~T~~TAAGC
 CAATAAGCTGCAGGATGTACACCTAACAGACCTCCTAGAAACCTTACCA~~G~~AAAATGGGGA
 CTGGGTAGGGAAAGGAAACTTAA~~A~~ACATCAACAA~~T~~GTGCCAGCCCACGGACTGCAGAGGCT
 GT~~C~~ACAGCCAGATGGGGTGGCCAGGGTGCCACA~~A~~ACCC~~A~~AGC~~A~~AGT~~T~~CAA~~A~~ATAATA
 TAAAATTAA~~A~~AGT~~T~~GTACATAAGCTATTCAAGAATTCTCCAGCACTGACTGATACAA
 AGCACAATTGAGATGCCACTTCTAGACACAGCAGCTTC~~A~~AAACCCAGAAAAGGGT~~G~~ATGAG
 ATGAAGT~~T~~TCACATGGCTAA~~A~~CTGCCAAAAACACAGTCTTCTTCTTCTTCA~~A~~
 GGANGCAGGAAAGCAATTAA~~T~~ACTGGT~~C~~ACCTTAA~~C~~ATAAGGGGAC

13725.2

TGGGTGGCACCATGGCTGGGATCAC~~S~~ACCATCGAGGCCGTGAAGGCCAAGATCCAGGTT
 CTGCCAC~~C~~AGGCCAGATG~~C~~ATGCCACAGGAGCCAGCTGAGGCC~~C~~TCACCGGAGAAGTTGA
 GGGAGAAAAGGCC~~C~~CCCGGGAAACAGGCTGAGGCTGAGCTGGCTCCTTGAAACCGTAGGA
 TCCAGCTGCTTGAAGAAAGAGCTGGACCGT~~C~~CTCAGGAGCC~~C~~CTGGCCACTGCCCTGCAA
 AGCTGGAAAGAACGCTGAAAAGCTGCTGATGAGACTGAGACAGGTATGAAGGTTATTGAA
 AACCGGGCCTTAAAAGATCAAGAAAGATGCCACTCCAGGAAATCCA~~A~~CTCAAAGAACG
 TAAGCACATTG~~C~~AGAAAGAGCCAGATAGGAAGTATGAAAGAGGTGGCTCGTAAGTGGT~~G~~
 CATTGAAGGAGACTTGGAAACCGCACAGAACGAACCGAGCTGACCTTGGCAAAAGTCCC~~G~~
 TGCC~~C~~AGAGATGGATGAACCAGATTAGACTGATGGACCANAACC

13726.1&2

AGGGGCGNGCGGTGCGTGGGCCACTGGCTGACCGACTTAGCCTGCCAGACTCTCAGCAC
 CTGGAA~~C~~CGCCCCGAGAGT~~G~~ACACCC~~G~~TGAGGCC~~C~~TGGGAGGGAGGACTTGCTTGAGCTTGT
 TAAACTCTGCTCTGAGCCTCTTGTG~~C~~CTGCA~~T~~TTAGATGCC~~C~~CCGCAAAGAACGGT~~G~~
 CGAGAACAAAAGGCC~~C~~CTCTGCC~~A~~TCACCA~~G~~AGTGGTAACCCGAGAATACACC~~A~~TC~~A~~
 CATT~~C~~ACAAGCC~~C~~ATCC~~A~~GGACTGGCTTCAAGAACGCGTGCACCTCGGGC~~A~~CTCAAAGAACG
 GATTGGAAATTG~~C~~CA~~T~~GAAGGAGATGGGAACTCCAGATGTGCCATTGACACCAGGCT
 CAACAAAGCTCTGGGCCAAAGCAATAAGGAATGTGCC~~A~~ACCGAATCCGGTGTGCC~~G~~
 TGTCCAGAAAACGTAATGAGGATGAAGGATTCA~~C~~ACCA~~A~~ATAAGCTATATACTTGGTTACCTA
 TGTACCTGTTACCAACTTCA~~A~~AAATCTACAGACACTCAATGTGGATGAGAACTAATCGCTG
 ATCGTCAGATCAAATAAGTTATAAAT

13727.1

TCGGGAGCCACACTGGCCCTTCCAAAGSGCCAGAACCTCCTCTTTGGAGAA
 TGGGAGGCCCTTGGAGACACAGAGGGTTCACCTGGATGACCTCTAGAGAAATTGCC
 CAAGAAGCCCACCTCTGGTCCAACCTGCAGACCCCCACAGCAGTCAGTTGGTCAGGCC
 GCTGTAGAAGGTCACTTGGCTCCATTGGCTGCTTCCAACCAATGGCAGGAGAGAAGGCC
 TTATTTCTGCCAACCCATTCTCCTGTACCAAGCACCTCGTTTCAGTCAGTGTGTCCA
 GCAACGGTACCGTTACACAGTCACCTCAGACACACCATTCACTCCCTTGCAAGCTGT
 TAGCCTTAGAGTGATTGAGTCAGTGAACACTGTTACACACCGTAATCCATTCCATCAGTCC
 ATTCCAGTTGGCACCAAGCCTGAACCAATTGGTACCTGGTGTAACTGGAGTCCTGTTACA
 AGGTGGAGTCGGGGCTGCTGACTTCTCTTCAATTGAGGGCAC

13727.2

ACCTAGACAGAAGGTGGGTGAGGGAGGACTGGTAGGAGGCTGAGGAAATTCTGGTAGT
 TTGCTCTGAAACCTACTGGAGAAGTCAGCATGAGGCACCTACTGAGAGAAGTGCCAGA
 AACTGCTGACTGCATCTGTTAAGAGTTAACAGTAAAGAGGTAGAAGTGTGTTCTGAATCA
 GAGTGGAAAGCGTCTCAAGGTCCCACAGTGGAGCTCCCTGAGCTACCTCCCTTCCGTGAGT
 GGGAAAGAGTGAAGCCCAGTGAAGAAACTGAGATGAAGCAAGGATGGGGTCTGGCTCCA
 GCCAAGGGCTGTGCTCTGCAAGGGAGCCCCACGAGTCAGAAGAAAAGAAACTAATCA
 TTGTTGCAAGAAACCTGCCCCGATACTAGCGGAAAAGTGGAGGCGNGTGGGGCAC
 AGGAAAGTGGAAAGTGAATTGATGCCAGAGCAGAGAAGCCTATGCACAGTGCCAGTCCAC
 TTGTAAGTG

13728.1&2

TTCAAGCAATTGTAACAAGTATATGAGATTAGAGTGAGCAAATCATATACAATTTCAT
 TTCCAGTTCTTATTTCCAATTGTTCTTAATGCTTAAATGCTTAAATTACTTAAATTAACAAA
 GCCAAAAAAATTATAATTGACAAGAAACCCATCCCTACATTAAATCTTACTTTCCACTCAC
 CGGCCCATCTCCTTCTCTTCTTAACATGCCATTAAACTGTTCTACTGGGCCGGCG
 TGTTGCTCATGCCGTAAATGCCAGCAATTGGCAGGCCAAGGCAGGCCGATCATGAGGTC
 AACAGATTGAGACCATCTGGCAACATGCTCAAACCCCCGCCCTGACTAAGAATACAAAA
 ATTAGCTGGGCATGGTGGCCATGCCCTACTCTCAGCTACTCGGGAGGCTGAGGCCAGAA
 GAATCGCTTGAACCCGGGAGCCAGAGGATGCAGTGAGCCCCGATGCCGGCACTGCACTCT
 AGCCTGGCGACAGACTGAGACTCTGCTC

13731.1&2

TGTGCCAGTCTACAGCCCTATCAGCAGCGACTCCTCAGCAACAGATGGGTCCCCGTTC
 AGCCCAACCCCATGAGCCCCCAGCAGCAATTGCTCCAAATCAGGCCAGTCCCCACACCT
 ACAAGGCCAGCAGATCCCTAAATTCTCTCTCCAATCAAGTGGCTCTCCCCAGCCTGTCCCTT
 CTCCAGGCCACAGTCCCAGCCCCCCCCACTCCAGTCCTTCCCCAAGGAATGCCCTCAGCC
 TTCTCCACACCACGTTCCCCACAGACAAAGTTCCCCACATCCTGGACTGGTAGTTGCCAG
 GCCAACCCCATGGAACAAGGGCAATTGCCAGCC

13734.1&2

TGTAAAAACTTGTTTAAATTTGTATAAAATAAGGTGGTCCATGCCACGGGGGCTGTA
 GAAAATCCAAGCAGACCAGCTGGGGGGATGTAGCCTACCTCGGGGGACTGTCTGT
 CCTCAAAACGGGCTGAGAAGGCCCCCTGAGGGCCCAGGTCCCACAGAGAGGCTGGGATA
 CTCCCCCAACCCGAGGGGCAGACTGGCAGTGGGAGCCCCCATCGTCCCCAGAGGTGG
 CCACAGGCTGAAGGAGGGGCTGAGGCACCGCACGCTGCAACCCCCAGGGCTGCAGTC
 CTAACCTTTACAGAATAAAAGAACATGGGATGGGAAAAAAAGCACCAGGTAGGCA
 GGGCCCGAGGGCCCCAGATCCCAGGAGGGCCAGGACTCAGGATGCCAGCACCCCTAGC
 AGCTCCCACAGCTCTGGCACAGGAGGCCACGGATTGGCACAGGCCGCTGCTGGCCA
 TCACGCCACATTTGGAGAACTTGTCCGACAGAGGTCACTCGGAGGAGCTCCTGTGGGC
 ACACACTGTACGAACACAGATCTCCTTAAATGACGTACACACGGGGAGGCTGCGGGG
 ACAGGGCACGGAGGTCTCAGCCCCACTT

13736.2

ATGGCTGCTGGATTTAGGTGGTAAATAGGGCTGTGGGCCATAAATCTGAAGCCTTGAGAA
 CCTTGGGTCTGGAGAGCCATGAAGAGGGAAAGGAAAAGAGGGCAAGTCCTGAACCTAAC
 AATGACCTGATGGATTGCTCGACCAAGACACAGAACAGTGAAGTCTGTCTGTGCACTTCCC
 ACAGACTGGAGTTTGGTCTGAATAGAGCCAGTTGCTAaaaaATTGGGGTTTGGTGA
 AGAAATCTGATTGGTGTGTCTAATCAATGTGTGATTTAAAAATAACAGCAACAACAATA
 AAAACCTGACTGGCTGTTTTCCCTGATTTCTTACAACATTTTGACCCCTGTGAAAAA
 TTATTATACTTACCTAAAATGAAAGACTGCTGTGTTGTGAAATTGTAATTTTAAATT
 TATTTTATCT
 ATATTTAATTGATTGTAAATATGTATATAAT

13744.2-13696.2

GGCATGGGAGCCCACTCGCC3ACGCCAACGGCGGGGGAGGCACACGGAGCACTGCAGG
 CGCCGGGTTGGCACAGCCTCTTUGCTCTCGATAGTCGTGTTTGGGATCGAGGAT
 ACTCACCAAAACCGAAAATGCCAACCCAATCAATGTCCGAGTTACCAACCATGGATGCA
 GAGCTGGAGTTGCAATCCACCCAAAATACAACCTGGAAAACAGCTTTGATCAGGTGCTA
 AAGACTATCGGCCTCCGGGAAGTGTGCTTGGCTCCACTATGTGGATAATAAGGAT
 TTCTACCTGCTGAAAGCTGCAAGAAGGTCTGCCCAGGAGGTCAGGAAGGAGAAATC
 CCCTCCAGTTCAGTCCGGGCCAAAGTCTTACCCCTGAAAGATGTGGCTGAGGAGCTCATCC
 AGGACATCACCCAGAAACTTTCTTCAAGTGAAGGAAGGAATCCTTAGCGATGAGAT
 CTACTGCCCCCTTGTGARACTCCCGTGTCTGGGCTCTACGCTTGTGCATGCCAGTTGG
 GGACTACCACCAAGAAG

13746.1&2-13720.1&2

GAAGGGAGCTGGGATACTCAGCAATTGATGCCACCCAAATTCAAAGCGGCATTCTCGGCAG
 GTCTCTGGGACAATCTCTAGGCTCACTACCTGAAACTCGTTAGGTACAACGTGATGCTG
 AAAGGAAAGAACACCTGCAAGAACCGGACAGAAATTCAACCCGGGATCAGCTGATTGATC
 TCGGTGACCCAGAACGTCATGGCTAAAGATGACGAGGACGTTGTCATTCCTGGCTTTTC
 GAAGTGAAGTCCAGCAGCACTGACGTTACCGGCTGGGTTATGACCTGGACCACCAAGCA
 CCAGCTCCGGGGGCCAGGTGCCAGGTTATCTACATTCCCTCAGGGTCTGATCAAAGTT
 CAGCTGGTACACCAGGGACCGTACCCGACCGCTCAGGTTGTCGGCTGGGCTGGGGACC
 GCCGGGACCAAGGAAGCCGCAACACGGTGGAGACCCCTGCCATGCCACAGCCACAGAG
 GGTCGGTCCCACCGCGGCCGCCACCCCGCGGGTTGGCTCCACCAACGGTGGG
 GCGAGGGCTCTTCTTCTGCCCCATTGCTGCTCCAGAGGAGCGAAGCCGCAAGCGG
 CCACCAAGAGCGTCAGGATTAGCACCTTCCGTTGTAGATGCGGAACCTCATGGTCTCCAG
 GGCGGGAGCCAGCTACAGCTCGACCCCTGGCGCCGCGCTAGGAGCCGGCTCGGCT
 TCGTCTCGTCTCTCCATTCAAGCACCAACGGGCCCCGAAAGCTCAGCCSCGGTCCCAC
 CCCACCCCTAGCTTGTACCTGCCCTCGCTTG

14347.1

CAGATTTTATTGCAGTCGTCACTGGGGCGTTCTGCTGCTTATTGCTGCTAGCCTG
 CTCTTCCAGCTGCATGGCCAGGCCAAGGCCCTTGATGACATCTCGCAGGGCTGAGAAATGC
 TTGGCTTGCTGGCCAGAGCAGATTCCGCTTGTACAAAGGTCTCCAGGTATAGTCTG
 GCTGCTCGGTCACTCAGAGAGCTCAAGCCAGTCTGGTCTTGTATGATCTCCTTGAG
 CTCTTCCATAGCCTCTCCTCCAGCTCCCTGATCTGAGTCATGGCTTGTAAAGCTGGACA
 TCTGGGAAGACAGTTCTCCCTTCTGGATAAAATTGCCTGGAATAGCGCCCCGTTAGA
 GCAGGCTTCCATCTCTCTGTTCCATTGAATCAACTGCTCTCCACTGGGCCACTGTGGG
 GGCTCAGCTCTTGACCCCTGCTGCATATCTTAAGGGTGTAAAGGATATTACAGGAGCT
 TATGCCTGGT

14347.2

CTCCCTTTGGTACATGAACCCAAGTTGAAAGTGGACTTAACAAAGTATCTGGAGAACCAA
 GCATTCTGTTGACTTGCATTGATGAAACAGCTTCGAATGAAGTTGTCTACAGGTTCAC
 AGCAAGGCCACTGGTACAGACAATCTTGAAGGTGGAAAGCAACTTGTGATATGG
 CCAGACAGGAAGTGGCAAGACACATACTATGGCGGAGACCTCTGGGAAAGCCCAGAA
 TGCAATCCAAGGGATCTATGCCATGGCTTCCGGGAGCTCTCTGAAGAATCAACCC
 GCTACCGGAAGTTGGGCTGGAAAGTCTATGTGACATTCTCGAGATCTACAATGGGAAGCT
 GTTGACCTGCTCAACAAGAAGGCCAAGCTTGGCGTGTGGAGACGCCAACCAACAGG
 TGCAAGTGGTGGGGCTTGCAGGAACATCTGGNTAACTCTGCTTGTATGATGGCANTCAAG
 ATGATCGACATGGGAGGCCCTGCAGA

14348.1&14350.1&2

TCCCGAATTCAACCCACAAATTGCAWAGTGAATGGAAGATGCCTATCATGAACATCAGG
 CAAATCTTTCGGCCAAGATCTGATCAGACGACAGGAAGAAATTAAAGACCCATGGAAGAAC
 TTCAACAATCAAGAAATTGGAGAACGTAAGAAATGCAATTGAGGCAAGACGGAGGAACGA
 CGTAGAAGAGAGGAACGAGATGATGATTGCTAACGTGAGATGGAAGAACAAATGAGGCG
 CCAAAAGAGAGGAAAGTTACAGGCCAATGGGCTACATGGATCCACGGGAAAGAGACATGC
 GAATGGGTGCCGGAGGGACCAATGAAACATGGGAGATCCCTATGGTTAGGGAGGCCAGAAA
 TTTCACCTCTAGGAGCTGGTGTGGCATAGGTTATGAAAGCTAATCTGGCTTCCACCAAG
 CAACCATGAGTGGTTCATGATGGGAAGTGACATGCGTACTGAGCGCTTGGGAGGGAG
 GTGGGGGGCTGTGGTGGACAGGGCTTAGAGGAATGGGCCTGGAACTCCACGAGGAT
 ATGGTAGAGGGAGAGAAAGACTACCGAACGC

14349.1&2

TTCGTGAAGACCCCTGACTGGTAAGACCATCACTCTCGAACGTGGAGCCCGAGTGAACACCATT
 GAGAAATGTCAGGCCAAAGATCCAAGACAGGAAGGCATCCCTCTGACCACCAKAGGTG
 ATCTTGTGGAAACACCTGGAAAGATGCAAGCCACCCCTGTCTGACTACAACATCCAGAAA
 GACTCCACCCCTGCACCTGGTGTGGCTCCGCTCAGACGCTGGGATGCAAATCTCGTGAAGACCC
 TGACTGGTAAGACCCATCACCCCTCGAGCTGGAGCCCACTGACACCACTCGAGAAATGTCAGG
 CAAAGATCCAAGATAAGGAAGCCATCCCTCTGATCAGCAGAGGTTGATCTTGTGGGA
 AACAGCTGGAAAGATGGACGGCACCCCTGTCTGACTACAACATCCAGAAAGAGTCCACTCTGC
 ACTTGGTCTGCGCTTGAAGGGGGGTGTAACTTCCCCTTTAAGGTTCAACAAATTTC
 ATTGCACCTTCCATTCAATAAAACTTGTGCTTCATT

14352.1&2

GGCGGGGTGCGTGGGCCACTGGGTGACCGACTTAGCCTGGCCAGACTCTCAGCACCTGGA
 AGCGCCCCGAGAGTGACAGCGTGAGGCTGGGAGGGAGGACTGGCTTGAGCTTGTAAAC
 TCTGCTCTGAGCCTCTTGTGGCTGCATTAGATGGCTCCCGCAAAGAAGGGTGGCGAGA
 AGAAAAAAGGGCCGTTCTGCCATCAACGAAGTGTAAACCCGAGAAATACACCATAAACATTC
 ACAAGCGCATCCATGGAGTGGGCTTCAGAAGCGTGACCTCGGGACTCAAAGAGATTC
 GGAAATTGCCATGAAGGAGATGGGAACTCCAGATGTGGCATTGACACCAGGCTAACAA
 AAGCTGTCTGGGCCAAAGGAATAAGGAATGTGGCATACCGAATCCGTGTGGCTGTCCA
 GAAAACGTAATGAGGATGAAGGATTACCAAATAAGCTATAACTTTGGTTACCTATGTACC
 TGTTACCACTTCAAAATCTACAGACAGTCATGTGGATGAGAACTAATCGCTGATCGT

14353.1

AATTCTTATTTAAATCAACAAACTCATCTTCTCAAGCCCCAGACCATGGTAGGCAGCCC
 TCCCTCTCCATCCCCCTCACCCCAACCCCTAGCCACAGTGAAGGAAATGGAAAATGAGAAGC
 CACGAGGGCCCCCTGCCAGGGAAAGGCTGCCACAGCTCCCTCCCTATAAATTAAAGTTCCTGCAGCCACAG
 TGTGGCTGGGGCAGCACCTGCCACAGCTCCCTCCCTATAAATTAAAGTTCCTGCAGCCACAG
 CTGTGGGAGAAGCATACTTGTAGAAGCAAGGCCAGTCAGCATCAGAAGGCAGAGGGCAG
 CATCAGTGAECTCCAGGCATGGAATGAAACGGAGGACACAGAGCTCAGAGACAGAACAGG
 CCAGGGGGAGAAGGAGAGACAGAAATAGGCCAGGGCATGGCGGTGAGGGA

14353.2

TGATGAATCTGGTGGCCTGGCACTACCCCCGAGATGATGGGCTCTCTGGGATCCCCAA
 CTGGCTTCCCTAAGAAATCCAACGGAGAAATCCTCGGAACCTCTCGGATAACCAGCTGCAAGA
 GGCAAGAACGTGATCGGGTTACAGATGGGCACCAACCGGGGGCGTCTCANCGAGGCA
 GACTGGCTACGGGATECCCACGGGACATCCTCTGATCCCACCCCAAGGCCCTGGCCCT
 CCCACGAATGGTTAATATATAATGTAGATAATATATTAGCACTGACATTCCCAGAGAGCCC
 CAGAGCTCTCAAGCTCTTCTGCAAGGTGGGGGTTCAAGCCTGTCTGTACCTCTGA
 ATGCCCTGCTGGCATCTCTCCCCATGGTTACTAATACATTCCCTCCCCATAGCC

17182.1&2

AGCGGAGCTCCCTCCCCCTGGTGGCTACAACCCACACAGCCAGGCTAGGCATCGAGCAG
 AACTCCAGCGACTGGTAACCACTGACATTCAAGGTGAAGGTGGGGACACCTACCTGGAT
 ACACAGGTGGTGGGACAGACAGGTGTCACTCGCAGTGTCACTGGGGGGCATGTGGCTCTGTG
 TACCTGAAGGACAGTGAAGAAGGTTGTCAGCAATTCCAGTGAAGCACCTGGAGCCTATCACC
 CCCACCAAGAACAAACAAGGTGAAAGTGAACCTGGCGAGGATGGGAAGCCACGGGGCGT
 CCTACTGAGCATTGATGGTGAGCAAGCATTGTCCTGATGGACCTTGATGAGCAGCTCAAG
 ATCCCTCAACCTCCGCTCTGGGAAGCTCTGGAAACCTGAAGCAGGCAGGGCCGGTGG
 ACTTGGTGGATGAAGACTGATCTCTCTTCTTCCCTGGCCCTGGCTGTGACACAAGATC
 CTCCCTGCACGGCTAGGCCATTGTTCTGGATTTCCTTTGTTTTCTTCTTCTTCTTCT
 GTACCTCTCCCCACAGCTTCTTCTTGTACCGTCTTCAATAAAAAGAAGCTGTTGGT
 CTA

17183.2

GGTTCACAGCACTGCTGTTGTGTTGCCGGCCAGGAATTCCAGGCTCACAGGCTATCT
TAGCAGCTCGTTCCTCGGTTTTAGTGCATGTTGAACATGAAATGGAGGAGAGCAAAAA
GAATCGAGTTGAAATCAATGATGTGGAGCCTGAAGTTTAAGGAAATGATGTGCTTCATT
TACACGGGAAGGCTCCAAACCTCGACAAAATGGCTGATGATTTGCTGGCAGCTGCTGAC
AAGTATGCCCTGGAGCGCTAAAGGTCACTGTGAGGATGCCCTCTGCAGTAACCTGTCCG
TGGAGAACGCTGCAGAAATTCTCATCCTGGCCACCTCCACAGTGCAGATCAGTTGAAAAA
CTCAGGCAGTGGATTTCATCAACTATCATGCTTCGGATGTCTTGAGACCTCTGGG

17186.1&2

TCGTAGCCATTTCCTGCTTGGAGAAATGACGCCACACTGACTGCTCATGTCGTTGGT
TCCATGCCAATTGGTGAATAGAACCTCATCCGGTAGTGGAGCCGGAGGGACATCTTGTC
ATCAACGGTGTGGTGCATTTGGAGCATACCAAGAGCTTGGTCTCGCCATACAGGGCA
AAGAGGTTGTGACAALAGAGGGAGAGATACGGCATGCCCTGTGCAGCCCTGATGCACAGTTCC
TCTGCTGTGACTCTCAGTGCCTGGGGCTCCCTGTCCGACAGATAAGAGATCA
CTTCCACCCCTGGCTTG

17187.1&2

TGGCACACTGCTTTAAGAAACTATGANGATCTGAGATTTTGTGATGTTTGACTCT
TTTGTGCTTAATCATATGTGCTTATAGATGTACATACCTCCTTGACAAAATGGAGGGG
AATTCAATTCACTGGGAGTGTCTTACTGTATAAAAACCATGCTCGTATAATGGCTTC
AAGTTGTAAAAATGAAAGTCACCTTAAAGAAAATAGGGGATGGTCCAGGATCTCCACTG
ATAAGACTGTTTAAGTAACCTAAGGACCTTGGGTCTACAGTATATGTGAAAAAAATG
AGACTTACTGGGTGACCAATTCAATTGTTAAAGATGGTGTGTGTGTGTGTGTG
TGTCTTGTGTGTGTTTGTGTTTAAAGGAGGGAAATTATATTACCGTTGCTTGAATT
ACTGKGTAAATATAATGTYTGATAATGATTGCTYTTGVCMACTAAAATTAGGVCTGTATA
AGTWCTARATGCMTCCTGGKGTTGATYTTCMAGATATTGATGATAMCCCTTAAAATT
GTAACCYGCCTTTCCTTGTCTYTCMATTAAAGTCATTCMAAAG

17191.1&89.1

GGGGGTAGGCTCTTATTAGACGGTATTGCTGTAATACAGGCTCAGAGTGCAGTGTAAAGC
AGTGTCAAGAGGCCCGCGTTAGCCCCAACAAATGTGGATTTCCTCCCTATTGATCACAGTG
GGTGGGTTTCTTCAGAAAGCCCCAGAGGAGGGACCAAGTGAAGCTCCAAGGTTAGAAGTG
GAACCTGGAGGCTTCAGTCACATGCTGCTTCCACGCTTCCAGGCTGGCCAGCAAGGAGGA
GATGCCCATGACGTOCCAGCTCTCCCATCTGACACCAAGTGAAGTCTGGTAGGACAGCAG
CCGCACGCCCTGCCTCTGCCAGGAGGGCAATCATGGTAGGCAGCATTGCAAGGGTCAGAGGT
CTGAGTCCGGAAATAGGAGCAGGGCAGGCTCCCTGCCAGAGGGACTTCTGGCCTGAAGAC
AGCTCCATTGAGCCCTGCAGTACAGGYTAGTGCCTTGAGCAAGCCCACAGCCTGGTA
AGGGCCGCTGCCAGGGCACGGGCCAGGAGCCA

17192.1&2

TAATTTCTTAGTCGTTGGAACTCTTAAGCATGCAGGAAAGCTTGAACAGAAGGGTTCACAA
AGGAACCAGGGTTGTCTTATGGCATTCCAGTTAAGCCAGAGCTGGGAATGCCCTCTGGGTCA
CCACATCAGGAGCAGAACGACTTGACTTGTGGTCTGCTGCCACGGTTGGCGCCACC
ACGCCCCACGTCCACCTCGTCTCCCCCTGCCGCCACGTCTGGGCGGCCAAGGTCTCCA
TTGATCTCCAGCTGAGACGTTATATCAATTGCTGGCTCCGGAAAATGATGGTCCATAACCG
AATCTTCAGGATGAGCCTCTCACTCTTGATTATGAAGAACAAATCCCTCTCCACTGC
CCATCAGCACCTCAATTGGTTTCCGGATAATTAAATTCTACTTTGCCCGTCTTATTITGA
ATAGCCCTTCACTCATCCAAAGTCATCTCTTGGACCCCTCTCTTACCTCTTCAACTTCA
TTCTCCATTTTCACTGTCGCACTGGATGATGTTCTCACCTTCAGGTGTTCTCAGTC
ACATTTGATTGATCCAAGTCAGTTAATTGTCCTTGACAGTTCCCAGTTGTGAGATCCGCT
ACCTCCACGTTGTCCTCGTTCAGGCCAGATCTATCACTTCCACTATGCTATCAAATT
CACGTTGCCACGAGAATCAATTCCATCTCCTCGGCCATTCCACGTCCACGGCCCCCTCG
ACCTCTCCAAGACCACCAACGACCTCGAATTAGGTGGTCAATTACGGTCTATCAACTGAA
AATTGCGCTCTTCACCCCTTCTCAAGTGGTTTCAATTGCTTCACTTCAGGAGGTGGTCG
CTTCTGGTCTCTATCAATTATTTCCCTCACCCCTGAAGTGTGATCAGGTCTCTCC
AACTCGTGC

17193

AAGCCGGATGGACCTGACTCAGCCGAATCCTAGCCCCCTTCCCTGGCCCTGCTGTGGTGCTC
GACATCAGTACAGACCGAACCAGCAGACCATCAAGCCTACGGGAGGCCGGGGCGCTT
GCGAAGATGAAGTTGGCTCCCTCTCCTTCCGGCAGCCTTAAGCTGGCTTGTCTTAAATG
GAATCAAAGACTGTGGACACCGCTGGCTCTCTGCTGAGCCAGCGGAACGTGACCA
TCGGCGTCCACATTGCTCACAGGGACTGGCAAGGCCATGCCTGCTGGGAGCTGCTGGTGG
AGAGACTCCGGATGACTCTGCTCAGATTCAAGGCCCTGCTCAGGAAAGGGAAAAGCTTGTG
GTCGAGGGACTGATAAGGGGACTCGTTGACATTGGGAAACCTTGTCAAATGCCCGAAGACT
TAACTCCCAGTCAAGCTTGTGGAACCTAGAAAAATCAAGCTGCACTGACCAACCTGAAGCCAGA
AGTACCTGACTGTGATTCAAAACCCCAAGGTGCTTACTTGGAGCCCATACTCTGGAAAGGAG
GCAAGGAATGTATTCCAGGTACACATCCCAGAGCACCTGATCCCTTGGGGCATGAAAGTGT
GACAAGTGTGGCTCTGAAAGGAATGTCCRGAGAAACCAAGCTAAATCATGGCACCTTC
AAATTGCCATCGTGACCCAGACCTCTATAAAATTAGGTTAAAGATGAATTTCACACTGCTTGTG
GAGAGTCCCACCCACTAAGCACTGTGCACTGTAAACAGGTTCTTGTCTGAGATGAAGGAA
GTAGGGGGTGGGGCTTCTTGTGATGCCCTCCTTAGGCACACACCCAAATGTCTCAAGTA
CTTGTACCTTAGGGTAGAACGGCAAAGCTGCCAGTAAATGTCTCAGCATTGTGCTAAATT
GGTCCTGCTAGTTCTGGATTGTACAAAATAAATGTGTTGTAGATGA

FIG. 15U

16443.1.edit

TCGAGCGGCCGCCGGCAGGTGTGGAGTCCAGCACGGGAGGCGTGGTCTGTAGTTGT
 TCTCCGGCTGCCATTGCTCTCCACTCCACGGCGATGTGCTGGGATAGAACCTTGAC
 CAGGCAGGTCAAGGCTGACCTGGTTCTGGCATCTCCTCCGGATGGGGGAGGGGTGTAC
 ACCTGTGGTTCTCGGGCTGCCCTTGGCTTGAGATGGTTTCTCGATGGGGGCTGGGA
 GGGCTTGTTGGAGACCTTGCACTTGACTCTTGCCATTCAACCAGTCCTGGTGCANGAC
 GGTGAGGACGCTNACCACACGGTACGGCTGGTACTGCTCTCCCGCGGCTTGTCTTG
 GCATTATGCACCTCACGCCGTCCACGTACCAATTGAACCTGACCTCAGGGTCTCGTGGC
 TCACGTCCACCACCGATGTAACCTCAAANCTGGNCACGANCACGC

16443.2.edit

AGCGTGGTCCGGCCGAGGTCTGAGGTTACATGCGTGGTGGACGTGAGCCACGAAGA
 CCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGGTGCATAATGCCAAGACAAA
 GCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACCGTCTGCA
 CCAGGACTGGCTGAATGCCAAGGAGTACAAGTGAAGGTCTCAACAAAGCCCTCCCAGC
 CCCCATCGAGAAAACCATCTCCAAAGCCAAGGGCAGCCCCGAGAACACAGGGTGTACAC
 CCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCCAGGTCAAGCCTGACCTGCTGGTCAA
 AGGCTTCTATCCCAGCGACATGCCCGTGGAGTGGAGAGGAATGGCAGCCGGAGAACAA
 ACTACAAGACCAACGCCTCCCGTGGACTCCGACACCTGCCGGCGGCCGCTCGA

16444.2.edit

AGCGTGGTTNCGGCCGAGGTCCAAACCAAGGCTGCANCCCTGGATGCCATCAAAGTCTTCTG
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 CTGGTACATCAGCAAGAACCCCAAGGACAAGACCGATGTCTGGTCCGGAGAGACATGAC
 CGATGGATTCCAGTTCCAGTATGCCGGCAGGGCTCCGACCCCTGCCATGTGGACCTGCC
 GGGCGNCGCTCGA

16445.1.edit

AGCGTGGTCCGGCCGAGGTCAAGAACCCCGCCGACCTGCCGTGACCTCAAGATGTGC
 CACTCTGACTGGAAAGACTGGCAGACTGACTGATTGACCCCAACCAAGGCTGCACCTGGAT
 GCCATCAAAGTCTTCTCCAACATGGAGACTGGTGGAGACCTGCCGTGTACCCCACTCACCCCA
 GTGTGGCCAGAACGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGGCATGTCTGGT
 TCGGGAGACCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCCCTG
 CCGATGTGGACCTGCCGGCGGCCGCTCGA

16445.2.edit

TCGAGCGGTGCCCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
 AACTGGAATCGATCGGNATGCTCTCGCCGAACCAGACATGCCTCTTGNCTTGGGTTCT
 TGCTGATGTACCAAGNTCTCTGGGCCACACTGGGCTGAGTGGGTACACGCAGGTCTCACC
 ANTCTCATGTTGCANAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTGGGTCAATC
 CAGTACTCTCCACTCTTCCAGACAGAGTGGCACATCTTGAGGTACGGCAGGTGCGGGCGG
 GTTCTTGACCTCGGTGCGACCACGCT

16446.1.edit

TCGAGCGGCCGCCGGGCAGGTCCCTCAGAGCGGTAGCTGTTCTTATTGCCCGGCAGC
 CTCCATAGATNAAGTTATTGCANGAGTCCCTCTCCACGTCAAAGTACCGAGCGTGGGAAGG
 ATGCACGGCAAGGCCAGTGACTGCGTGGCGGTGCAGTAATTCTCATAGTTAACATATC
 GCTGGAGTGGACTTCAGAATCTGCCTCTGGGAGCATTGGGACAGAGGAATCGCTGC
 ATTCCCTGCTGGTGGACCTCGGCCGACCACGCT

16446.2.edit

AGCGTGGTCCGGCCGAGCTCCACCAAGCAGGAATGCAGCGGATTCCCTCTGTCCCAGTGC
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 CACCGCCAACGCAGTCACTGGCCCTTGGCGTGCATCCTTCCCACGCTGGTACTTTGACGTG
 GAGAGGAACCTCTGCAATAACTCATCTATGGAGGTGCCGGGCAATAAGAACAGCTAC
 CGCTCTGAGGAGGACCTGCCCGGGCGCTCGA

16447.1.edit

TCGAGCGGCCGCCGGGCAGCTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
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 TGCTGATGTACCAAGTTCTCTGGGCCACACTGGGCTGAGTGGGTACACGCAGGTCTCACC
 AGTCTCATGTTGCAGAACAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTGGGTCAATC
 CAGTACTCTCCACTCTTCCAGCCAGAACATGGCACATCTTGAGGTACGGCANGTGCGGGCGG
 GGTTCTTGACCTCGGCCGCGACCACGCT

16447.2.edit

AGCGTGGTCGCGGCCGAGGTCAAGAAACCCGCCGACCTGCCGTACCTCAAGATGTG
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 AGTGTGGCCAGAAGAACCTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGG
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 GCGATGTGGACCTGCCCGGGCGGCCGCTCGA

16449.1.edit

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 GCTGAATACCATTTCAGTGTCAACCCAGGGTGGGTGACGAAAGGGGTCTTTGAACGT
 GGAAGGAACATCCAAGATCTCTGNTCCATGAAGATTGGGTGTGGAAGGGTACCAAGTTG
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16450.1.edit

TCGAGGGCCGGGGGGGGCAGGTCCACCAACCCAAATTCCCTGCTGGTATCATGGCAGCCGC
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 AGTGGTCCCTCGCCCCCCCCCTGGTGTACAGAGGCTACTATTACTGGCTTGGAACCCGGG
 ACCGAATATACAATTATGTCAATTGCCCTGAAGAAATAATCAGAACAGCGAGCCCTGATTG
 GAAGGAAAAAGACAGACGGAGCTTCCCAACTGGTAACCCCTCACACCCCAATCTTCATG
 GACCAGAGATCTGGATGTTCTTCCACAGTTCAAAAGACCCCTTCTGTACCCACCCCTGG
 GTATGACACTGGAAATGGTATTTCAGTTCTGGCACTTCTGTGTGCAACCAACCCAGTGG
 CAACAAATGATCTTGANCAACATGGNTTACGGGGACCACACCGGGCACACGGGCACC
 CCCATAAGGCATAGGCCAAGAACATACCCONCGAATGTAGGACAAGAACGCTCTNTCTCAN
 ACAANCAATCTCAATTGGCCCCATTCCANGACACTTCTGACTACATCANTTCATGGCATCCTG
 GTGGCACTGATAAAAACCCATTACAGTTA

16450.2.edit

AGCGTGGTCGCGGCCGAGGTCTGTCAAGACTGGCACTGGTAGAAGTTCCAGGAACCCCTGA
 ACTGTAACGGTTCTTCATCAGGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTG
 CTGGAAATGGGGCCCATGAGATGGCTCTGAGAGAGAGCTTCTGTCTACATTGGCGGG
 TATGGTCTTGGCCTATGCCCTATGGGGTGGCCGTTGNGGGCGGTGTTGCGCTAAAC
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 GAAGGAACATCCAAGATCTGTGTCATGAAGATTGGGTGTGGAAGGGTTACCAAGTTG
 GGAAGCTCGTCTGTCTTTCTTCCAATCANGGGCTCGCTTCTGATTATTCTTCAGGGC
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 CCANGGGGGGGGGCAAGGANCAC

16451.1.edit

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 ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTAAACTGTTGTGCCAGTG
 CTTANGCTTGGAAAGTGGTCATTTAGATGTGATTCACTAGATGGTCCATGACAATGGT
 GTGAACATACAAGATTGGAGAGAAGTGGACCGTCAGGGAGAAAATGGACCTGCCGGGC
 GGCGCTCGA

16451.2.edit

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 CCTTCGNTGACAGAGTTGCCACGGTAACAAACCTCTCCGAACCTTAGCCTCTGCTGGT
 CTTCACTGCCTCCACTATGATGTTGTAGGTGGTACCTCTGGTAGGACCTCGGCCGCGAC
 CACGCT

16452.1.edit

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 AAAGTGTCTTAAGAACAATACACACTCACTTCAATTGGCNCACCATAGTCTGATA
 CAACCAACGGAAATGACCTGTCAGGAAC

16452.2.edit

TCGAGCGGCCGCCGGCAGGTCCCTCAGACCGGGTTCTGAGTACACAGTCAGTGTGGTTGC
 TTGCACTGATGATATGGAGAGACCCAGCCCCCTGATTGGAACCCAGTCCACAGCTATTCTGCA
 CCAACTGACCTGAACCTCACTCAGGTACACACCCACAAGCCTGACCGGCCAGTGGACACCA
 CCCAAATGTTCACTGCTCACTGGATAATCGAGTGCAGGGTACCCCCAAGGAGAAAGACCGGACCA
 ATGAAAGAAATCAACCTTGGCTCCTGACAGCTCATCCGTGGTTGTATCAGGACTTATGGCGG
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 GGGTGTGTCACCACTCTGGAGAATGTCAGCCCACCAAGAAGGGCTCGTGTGACAGATGC
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 AGTTGATGCCGTTCCACCAATGGACCTCGGCCGGACCAAGCGCTT

16453.1.edit

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TCTCATTCATGGATCTTCTCACCCAGCTCTCAGTCAGTCAGAAGGTTGTTGTCC
TCATCCCTCTCATACAGGGTGACCAGGACGTTCTGAGCCAGTCCGCATGCGCAGGGGA
ATTGGTCAAGCTCAGACTCCAGGAACGGGGATGTATTGCAAGGCCAGTAGTCCA
AGTGGAGCTTGTGGCCCTCTGGTGCCTCAAGGTGCACTTGTGGCAAAGAAGTGGCA
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GGCAGACCTGCCCGGGCGGCCGCTGA

16453.2.edit

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GCAATGACAACAAGAACCTCGACTCTTCTGECACCTTCTGCCACAAAGTGCACCCCTGGA
GGCACCAAGAAGGCCACAAGCTCCACCTGGACTACATCGGGCCTTGCACAAATACATCCC
CCCTTGCCTGGACTCTGAGCTGACCGAATTCCCCCTGCGCATGCGGACTGGCTCAAGAAC
GTCTGGTCAACCTGTATGAGAGGGATGAGGACAACAACCTCTGACTGAGAAGCANAAG
CTGGGGGTGAAGAANATCCATGAGAATGANAAGCCGCTGNAGGCANGAGACCACCCGT
GGAGCTGCTGGCCGGACTTCGAGAACAACTATAACATGTACATCTCCCTGTACACTGG
CAGTCGGCCAGACCTCGGGCGGACCACGCT

16454.1.edit

AGCGTGGNTCCGGACGACGCCACAAAGCCATTGTATGTAGTTTANTTCAGCTGCAAAN
AATACCNCCACCATCCACCTTACTAACCGACATATGCAGACA

16454.2.edit

TCGACCGGTGCCCGGGCACGTCTGGGGGATAGCACCGGGCATTTGGAAATGGATGA
GGCTGGCACCCCTGAGCACCCACGGGACTTGGTCTTAGTTGAGCAATTGGCTAGGA
GGATAGTATGCACCCACGGTTCTGACTCTGGGATAGCTGCCATGAAGNAACCTGAAGGA
GGCGCTGGCTGTANGGGTTGATTACAGGGCTGGAAACAGCTCGTACACTGCCATTCTCT
GCATATACTGCNTACTGAGGGAGGGCTGGCGCTCTCTTGTGCGCTGAGCTAAAGCTACATA
CAATGGCTTGNGGACCTCGGGCGGACCACGCTT

16455.1.edit

TCGAGCGGCCGCCGGGCAGGTCCATTCTCCCTGACGGTCCCACCTCTCTCCAATCTTGT
 AGTCACACEATTGTATGACACCACATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
 GCCTAACGACTGGCACAACAGTTAAAGCCTGATTCAAGACATTCTGTTCCCACTCATCTCCA
 ACGGCATAATGGGAAACTGTGTAGGGCTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAG
 CCTTCGTTGACAGAAGTTGCCACGGTAACAACCTCTCCGAACCTTATGCCTCTGCTGGT
 CTFTCAAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGGTAGGGACCTCGGCCCGA
 CCACGCT

16455.2.edit

AGCGTGGTTGCGGCCGAGGTCTCTCACCANAGGTGCCACCTACAACATCATAGTGGAGGC
 ACTGAAAAGACCAGCAGAGGCATAAGGTTGGAAAGAGGTTACCGTGGCAACTCTGT
 CAACGAAGGCTTGAAACCAACCTACGGATGACTCGTGTGTTGACCCCTACACAGNTCCCAT
 TATGCCGTTGGAGATGAGTGGAAAGGAATGTCTGAATCAGGCTTAAACTGTTGTGCCAGT
 GCTTANGTTGGAAAGTGGTCAATTCAAGATGTGATTCACTANATGGTGTATGACAATGG
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 CGGGCNCGCTCGA

16456.1.edit

AGCGTGGTCGCCGCCGAGGTCTGGCTTCTGCTCAGTGATTATCCTGAACCATCCAGGCC
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16456.2.edit

TCGAGCGGCCGCCGGGCAGGTCCATTGAAACAAACAGTTCTGAGACCGTTCTCCACCA
 CTGATTAAGACTGGCGGGCGGCTATTAGGATAATTATTCAATTAGCCTTCTGAGCTTCT
 GGGCAGACTTGGTGAACCTTGCACGCTCCAGCAGCCCTCTGGTCCACTGCTTGTGACACC
 CACCGCAACTGTCTGTCTCATATCACGAACAGCAAAGCGACCCAAAGGTGGATAGTCTGA
 GAAGCTCTAACACACATGGCTTCCAGGAACCATAATCAACAAATGGCAGCATCACCAAG
 ACTTCAAGAATTAAAGGGCCATCTTCCAGCTTTTACCAAGAACGGCGATCAATCTTCTT
 CAGCTCAGCAAACCTCCATGCAATGTGAGCCG

16459.1.edit

TCGAGCGGCCGCCCCGGCAGGTCCAGAGGGCTGTGCTGAAGTTGCTGCTGCCACTGGAG
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 GGACATTGCCATCCCATGCAACAACAAGGGAGCTCACTCAGNGGGCTTGTGTTGAGTGTGGTGG
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16459.2.edit

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 GAAATTCCCTCTGGNCACTGCCTTCTCAGCAGCAGCCTGCTCTTCTTTCAATTCTCTTC
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 CCACGCATGCGCAGAACTTCCCAGGCCATCCACCACATCAAACCCACTGAGTGAGCT
 CCCTTGTGTTGCAATGGGATGGGAAATGTCACATAAGCGCAGAGGAGAAATCTGTGTTACAC
 AGCGCAATGGTAGGGTAGGTTAACATAAGATGCCCTCCCGAGAAAGCTGGTGGTCAGCCCTG
 GGGTCAGTAACCACAAGAACCCGTGGCTCCCGAAGGCTGCTGGATCTGGTTAGTGAA
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16460.1.edit

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 GCCTAAGGACTGGCACAAACAGTTAAACCCCTGATTCAAGACATTGCTTCCCACTCATCTCCA
 ACGGCATAATGGGAAACTGTGTAGGGCTCAAAACCCACGACTCATCCGTAGGTTGTTCAAG
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 GACCAACGCT

16460.2.edit

AGCGTGCTGGCGCCGAGGTCTCACCAAGAGGTGCCACCTACAAACATCATAGTGGAGGCA
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 ATGCCGTTGGAGATGACTGGGAACGGATGTCTGAATCAGGCTTAAACTGTTGTCAGCTG
 CTTANGCTTGGAAAGTGGCTCAATTCAACATGTGATTCACTAGATGGTGGCCATGACAATGG
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 CGGGGGCTCGA

16461.1.edit

AGCGTGGTCGCGGCCGAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCGAA
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 CTCCATGTTGAGAAGACTTTGATGGCATCCAGGNTGCAACCTGGTGGGTCAATCCAG
 TACTCTCCACTCTTCAGCCAGAGTGGCACATCTGAGGTACGGCAGGTGCGGNCGGGGG
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16461.2.edit

TCGAGCGGCCGCCGGCAGGTCTCGCGTCGCACTGGTATGCTGGCCTGTTGGTCCCC
 CCGGCCCTCCTGGACCTCCTGCCCGGGCTGGCCTCCCAGCGCTGGTTGACTTCAGCTTC
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16463.1.edit

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 ATGAAGCTGTNCAAAGATCTCACCGTOGANAAAACCAT

16463.2.edit

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 GGCTCCAACTGGAGACGGCTCTGGAGACAGTCTCTGTAATCGCGAAAGCAACCATG
 GAAGACCTGGGGAAAACACCATGGTTTATCCACCTGAGATCTTGAACAACCTCATCT
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16464.1.edit

CGAGCGGGCGACCGGGCAGGTNCAGACTCCAATCCANANAACCATCAAGCCAGATGTCAG
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 GATATCNATTTGNCAATTGGCCTTCAACAATAATT

16464.2.edit

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 ATTCAAGGTG

16465.1.edit

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16465.2.edit

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 CATTTCATCTGGCCAGGACACACTGGCTCTCACCTGGCACTGGTCCCACAGAAAGCCCCGAGC
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16466.1.edit

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16466.2.edit

TCGAGCGGGTTGGCCCCGGGGCAGCTCCACCAACCCAAATTCTTGCTGGTATCATGGCAGCCG
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 TTGGAAGGA

01_16469.edit

AGCGTGGTCGCGGCCGAGGTGTACAAGCTT
|||||
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02_16469.edit

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AAACAAAT

03_16470.edit

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CTCTCTCAGACAAACCATCTCATCGGCCCCATTCCAGGACACTTCTGAGTACATCATTCATG
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GCCACTCTGACAGGACCTGCCCGGGCGCCGCTCGA

04 16470.edit

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56_16496.edit

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59_16498.edit

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60_16473.edit

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60_16498.edit

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 TCAGGTCAACCCACAAACCTGACCCGCACTGGACACCACCCAAATGTTCACTCAGGAT
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61_16499.edit

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62_16483.edit

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 CCCATAAGGNATAGGCCAAGACCATACCCCCCGAACATGTTAGGACAAGAACCTCTNTCTCA
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63_16500.edit

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GGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTCAAGCC
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GCTCGA

64_16493.edit

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64_16500.edit

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TGCTTAGGCTTGGAAAGTGGTCAATTCAAGATGTGATTCACTAGATGGTGCCATGACAATG
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CGACCAACGCT

16501.edit

TCGAGCGGCCGCCGGGCAGGTACCGGGGTGGTCAGCGAGGAGCCATTACACACTGAACCT
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 CCTCTGTACTCTGGCTGCAGACTGACTTTGTCAGACCTGAGAAAATGGGGCAGCCACTG
 GAGTGGACGCCATCTGCACCCCTCCGCCTGATCCCCTGGTACTGGACTGGACANANAGCG
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16501.2.edit

GAGGACTGGCTCAGCTCCCAGTATAGCCGCTCTGTCCAGTCCAGGACCAGTGGGATCAA
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 AGNCAGTCTGCAGCCAGAGTACAGAGGGCCAACACTGGTGCCTTGAACAGGGACCTGAG
 CAGGCCCTGAAGGACCCCTCCGTGGTGTGAACTTCTGGAGCCAGGGTGCTGCATGTT
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16502.1.edit

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 AAGGAAAAAGACACACCGAGCTTCCCCAACCTGTAACCCCTCACACCCCAATCTTCATGG
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 GGGATTAAACCTTGGAAANGGGAAATTACCNNTCC

16502.2.edit

TCGAGGGCCGCCGGGCAGGTCTGTCAAGACTGGCACTGGTACAAGTCCAGGAACCC
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 GGGTAGGGTCTGGCTATGCCCTATGGGGGTGGCCGTTGTGGCGGTGTGGTCCGCCCTAA
 AACCATGTTCTCAAGATCAATTGTTGCCAACACTGGGTTGCTGACCAAGTGCCAGG
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 CCTGGNGAAAGGAACCATCCAAAANCTCTGNCCCCATG

16503.1.edit

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16503.2.edit

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 CAGGTNTTTCT

16504.1.edit

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16504.2.edit

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16505.1.edit

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 CCAACCTGCCTTCTGGCACCACACCCAAATTCTTGTGGTATCATGGCAGCCGACG
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 GGTCCCTCGGCCCCCTGGTGNACAGAAGCTACTATTACTGGCCTGGAACCGGGAAC
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 AGG

16505.2.edit

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 TCTCTGGGAGGGAGACCCAGGCTTCTCATACTTGATGATGTANCCGGTAATCTGGCACCCT
 GGCGGCTGCCATGATACCAGCAAGGAATTGGGTGTTGGCAAGAAACGCAGGTTGGAT
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16506.1.edit

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 AC

16506.2.edit

ACCGTGGTCCGGGGCGAGGTCCACATCGGAGGGTGGAGCCCTGGCCGCCATACCGAA
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 CTCCATGGCAGAAGACTTGTGGCATCCAGGTTGAGGCTTGGCTGGGTCATCCAG
 TACTCTCAACTTCCAGTCAGAGTGGCACATCTTGAGGTCAAGGGCAGGTGGGGGG
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 GGTGTCACCTCGAGGTCAAGGTACGGTACGAAACCTGCCGGGGCGCTCGA

16507.1.edit

AGCGTGGTCGGGCCGAGGTCAAGAACCCCCCGCACCTGCCGTGACCTCAAGATGTGC
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GTGTGGCCCAGAAGAACTGGTACATCAGCAAGAACCCAAGGACAAGAGGGCATGTCTGGT
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CCGGCCGTTACTACTG

16507.2 edit

TCGAGCGGCCGCCCCGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
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TGCTGATGTACCACTTCTGGGCCACACTGGGCTGAGTGGGCTACACGCAGGGTCTCAC
AGTCTCCATGTTGCAAGAAGACTTGTATGGCATCCAGGTTGCAAGCCTTGGTTGGGTCAATC
CACTACTCTCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGGCG
GGTTCTTGACCTCGGCCGGACCGCT

16508, 1.edir

CGAGCCGCCGGGGCAGGTCCCCCCCCTT

16508.2.edit

ACCGTGGTCGGCCCCGAGGTCTGGCATTCCTTCGACTTCTCTCCAGCCGAGCTTCCCAGAA
CATCACATATCACTCCA.A.AAAATACCATTTGCATACATGGATCAGGCCAGTGGAAATGTAAA
GAAGGCCCTGAAGCTGATGGGGTCAAATGAAGGTGAATTCAAGGCTGAAGGAAATAGCA
AATTCACTACACAGTTCTGGAGGATGGTGCACGAAACACACTGGGGATGGAGGAAAA
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AATCTTGGCAACCAAGTGCACCGACA.AAATTCAGTTATTATTTCCAAAATGTTG
GAAACAGTATAAATTGACAALAGAAAAAAGGATACTTCTCTTTTGGCTGGTCCACCAAA
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TGGGGCTTATAATAAAATAAACTTTGACCCCTTTTNTGAT

FIG. 1577

16509.1.edit

AGCGTGGTCGCGGCCGAGGTCTGGATGCTCCTGCTGTACAGTGAGATATTACAGGATC
 ACTTACGGAGAAACAGGAGGAATAAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
 TCTACAGCTACCATCAGCGGCCCTA~~A~~ACCTGGAGTTGATTATACCACACTGTGTATGCTG
 TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAATTCCATTAAATTACCGAACAG
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 AGTGGCTGCCTCAAGTCCCCCTGTTACTGGTTACAGAAGTAACCACCACTCCAAAAATG
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 GGAGAAAGTCAGCCTCTGGTTAGACTGCAGTAACCAACATTGATGCCCTAAAGGACT
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16509.2.edit

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16510.1.edit

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16510.2.edit

ACCGTGGTCGCGGCCGAGGTCTGGATGCTCCTGCTGTACAGTGAGATATTACAGGATC
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 AGTGGCTGCCTTCAGTTCCCTGTTACTGGTTACAGAGTAACCACCACTCCAAAATGG
 GACCAGGACCAACAAA~~A~~CTAACACTGCAGGTCAGATCAAAACAGAAATGACTATTG
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16511.1.edit

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16511.2.edit

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 CGAACACCCAATTGTTGTTGCCTCCATATGACCTGCAGTAATACTAGCCTCATCCTCAGC
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16512.1.edit

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 GA

16512.2.edit

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 GACATGAAGGAACCTGGCCATATGGGACCCATTGGCTGNGAAGCTGCACACTTATAAGACA
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 CACGCTT

16514.1.edit

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 TCATGGAGAGTGGGCCAAGGGCTGCGAGGTTGTGGATGGCTGATGATCCACAGCGAGACCCGAGGACAGA
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16514.2.edit

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16515.1.edit

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 GCCCCANACCTGCCCGGGGGGGCTCNAAAAGCCGAAATCCAGNACACTGGGGCCGNT
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 CGTTGCGCTTCACTGCCCGCTTTCCAGTCCGGNA

16515.2.edit

TCGATCGGCCGCCGGGACGGTCTGCCCAAGGGGACCAACACGTCTCTCTCACCAAGGA
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 TCAACCCAGGAGGACCCGGCTGTCCCTCAATCCATCCAGACACATTGTGNCCCTAAATGCC
 TTGAAGCCACCGAAGTCCAGGAAGTTCCAGGGAAACCAACGACCCCTGTGGTCCAACAC
 TCCTCTCTCACCAAGGTCTCCGGTTTCCAGGCTGACCATCTCACCAAGCCTTGGCAGGA
 GGGCCAGACCTCGGGGGGACCAACGGCT

16516.1.edit

ANCGTGGTCGCGGCCGAGGTCTCACCAAGAGGTGNACCTAACATCATAGTGGAGGCA
CTGAAAGACGANCAGAGGCATAAGTTGGGAAGAGG

16516.2.edit

TCGAGCGGCCGCCGGCAGGTCCATTCTCCCTGACGGTCCCACCTCTCCAATCTTGT
AGTTCACACCATTGTCATGGCACCATCTAGATGAATCACATCTGAATGACCACCTCCAAA
GCCTAAGCACTGGCACAAACAGTTAACGCTGATTCAAGACATTGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTCAAG
CTTCAGTGCCTCCACTATGATTTGTAGGTGGCACCTCTGGTAGGGACCTCNGNCNGAAC
TTTCAGTGCCTCCACTATGATTTGTAGGTGGCACCTCTGGTAGGGACCTCNGNCNGAAC
AACGGCTTAAGCCCCNATTCTGAGAAATATCCCACACTTGGCGCCGCTCGANCATG
CATCNTAAAAGGGGCCCAATTTCCTTATAAGNGAANCGTATTNCCAATTTCAGTG
GNCCCGCCGNTTTACAAACGNCGGTGAACGGGGAAAACCCCTGGCGGTTACCCAACCTT
TAATGCCNTGGCAGCACAAATCCCCCTTTCGNCCANCNTGGCGTAAATAACCGAAAAA

16517.1.edit

ANCGNGGTGCGGGCCGANCTN|||||CTTNTTTTTT

16518.1.edit

ACCGTGGTCGCGGCCGAGGTCTGACCTAACATGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAACTTCAACTGGTACGTGGACGGGGTGGAGGTGCATAATGCCAAGACAAA
GCCGGGGAGGAGCACTACAACACCCACGTACCGGGNGGTCAAGCTCCTCACCGTCTGCA
CCAGAATTGGTGAATGGCAAGGAGTACAAGNGCAAGGTTTCAACAAGGCNTCCCAGC
CCCCNTCGAAAAAAACCATTTCCAAGCCAAAGGGCAGCCCCGAGAACCCACAGGTGTACAC
CCTGGCCCCATCCCCGAGGAAAAAGANAAANAACCNCGTTCAGCCTTAACTTGCTTGGTC
NAANGCTTTTATCCAAACCONACTCCCCNTGGAANTGGGAAAACCAATGGGCCAANC
CGAAAAACAAATTACAANAACCCC

16518.2.edit

TCGACCGGCCCCCGGGCAGGTGTGGACTCCAGCACGGGAGGGGTGGCTTGTAGTTGT
TCTCCGGCTGCCCATTGCTCTCCCACCTCACGGCGATGTGGCTGGATAGAAGCCTTGAC
CAGGCAGGTCAAGGCTGACCTGGTTCTGGTCACTCTCTCCGGGATGGGGGAGGGGTGAA
CACCTGGGCTTCTCGGGGCTTCCCTTGGTTGAANATGCTTCTCGATGGGGGCTGG
AAGGGCTTGTGNAAAACCTTGCACCTGACTCTGGCAATTCAACCCAGNCTGGNCAGGA
CGGNGAGGACNCTNACCACACGGAACCGGGCTGGACTGCTCC

16519.1.edit

ACCGTGGTCGCGGACGANGTCTGTCAAGAGTGNACTGGTAGAAGTTCCANGAACCTGA
ACTGTAAGGGTTCTTCATCAGGCCAACAGGATGACATGAAATGATGTAECTAGAAGNGN
CCTGGAATGGGCCCCATGANATGGTGC

16519.2.edit

TCGAGCGGCCGCCGGCAGGTCCACCAACCCAAATTCTGCTGGTATCATGGCAGCCGC
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AGTGGTCCCTCGGCCCCCTGGTGTCAAGAGGCTACTATTACTGGCCTGGAACCGGGAA
ACCGAATATACAATTATGTCAATTGCCCTGAAGAATAATCAGAAGAGGGAGCCCTGATTG
GAAGGAAAAAGACAGACGAGCTCCCCAACGGTAACCCCTCCACACCCAAATCTTCATG
GACCAGAGATCTGGATGTTCTTCCACAGTCAAAAGACCCCTTCCGGCACCCCCCTGG
GTATGAACCTGGAAAANGNANTTAANCTTCTGGCA

16520.1.edit

ACCGTGGTCGCGGCCAGGTCTGGATGCTCCTGCTGTCAAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAATAGCCCTGTCAGGAGTTCACTGTGCCTGGAGCAAG
TCTACAGCTACCATCACCGCCCTTAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCCGCAAGCAGCAACCCAAATTCCATTAAATTACCGAACAG
AAATTGACA.AACCATCCCAGATGCAACTGACCGATGTTAGGACAACAGCATTAGTGTCA
AGTGGCTGCCCTCAAGGTNCCTGGTACTGGTTACAGANTAACCACCACTCCAAAAATG
GACCAGGAACCACAAAAACTTAACTCCACGGTCCAGATCAAACAGAAATGACTATTGA
ANGCTTGCAGCCCACACTGGGAGTATGNGGTAAGTCNCTATGCTTCAGAATCCAAGCGGA
AAAANCTCAACCCCTNTGGGTTCAA

16520.2.edit

TCGAGCGCCCCCGGCCAGGTCTTCCAGCTCTGCAGTGTCTTCTTACCATCAGGTGCA
GGGAATAGCTCATGGATTCATCTCAGGGCTCGAGTAGGTCAACCTGTACCTGGAAACTT
GCCCTGTGGCTTCCCAAGCAATTGATGGAATCGACATCCACATCACTGAATGCCAG
TCCTTAGGGCGATCAATGTTGGTTACTGCAGNCTGAACCAAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACACACATACCTCACTGTGGCTGCAANCCTCAATAANN
AATTCTGTTGATCTGGACC

16521.2.edit

TCGAGCGCCCCGGCCAGGTCTGGCTGGCTCTGGCACACGGCACATGGGCGNTTGNT
CTNATCCAGCTGCCAGGGCCCAATTGGCGAGTTGAGAAGGTGTGCAGCAATGACAACAA
NACCTTCGACTCTTCTGCCACTTCTTGGCACAAAGTGCACCCCTGGAGGGCACCAAGAAG
GGCCACAAAGCTCCACCTGGACTACATGGGCTTGCAAAATACATCCCCCTTGCCTGGACT
CTGACCTGACCGAATTCCCCCTTGGCGATGGGGACTGGCTCAAGAACCGTCTGGCACCC
TTGTATCANACCGATGAAAGACACNACCC

16522.1.edit

AGCGTGGTCGGGGCGAGGTCTGTCTACAGTCCTCAGGACTCTACTCCCTAGCAGCGTG
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 CCAGCAACACCAAGGTGGACAAAGAGAGTTGAGCCCCAAATCTTGTGACAAAACACACAT
 GCCCACCCTGCCCAGCACCTGAACTCCTGGGGGACCGTCAGTCTTCCCTTCCCCCGCAT
 CCCCCTTCAAACCTGCCGGCGGCCCTCGAAAGCCGAATTCCAGCACACTGGCGGGCG
 GTACTAGTGGANCCNAACTTGGNANCCAACCTGGNGGAANTAATGGCATAANCTGTTTC
 TGGGGGGAAATTGGTATCCNGTTACAAATTCCCNACAAACATACGAGGCCGAAGCATAAA
 AGNGTAAAAGCCTGGGGNGGCCTANTGAAGTAAACTCACATTAATTNGCGTTG
 CCGCTCACTGGCCCCTTTCCAGC

16522.2.edit

TCGAGCGGGCGCCGGGCAGGTTTGGAAAGGGGGATGCGGGGGAAAGAGGAAGACTGACGG
 TCCCCCCCAGGAGTTCAAGGTGCTGGGCACGGTGGCATGTGTGAGTTTGTACAAGATTG
 GGCTCAACTCTCTTGTCCACCTTGGTGTGCTGGGCTTGTGATCTACGTTGCAGGTGTAGGT
 CTGGGNGCCGAAGTTGCTGGAGGGCACGGTCACCAACGCTGCTGAGGGAGTAGAGTCTGA
 GGACTGTANGACAGACCTCGGCCGNACCAACGCTAACGCTAACGCGAATTCTGCAGATATCCATCA
 CACTGGCGGCCGCTCCGAGCATGCATTAGAGG

16523.1.edit

AGCGTGGNCGGACGANCACAACAAACCC

16523.2.edit

TCGAGCGGGCGCCGGGCAGGNCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
 AACTGGAATCCATCGGTCAATGCTCTTGGCGAACCAAGACATGCCCTTTGCTCTTGGGTTCTT
 GCTGATGNACCACTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCA
 GTCTCCATGTTGCAGAAGACTTTGATGGCATCCACGGTTGCAGCCTTGGTTGGGTCAAATCC
 AGTACTCTCACTTCCAGTCAGAGTGGCACATCTTGACGTCACGGCAGGTGCGGGCGGG
 GTTCTTGACCT

16524.1.edit

AGCGTGGTCGGGGCGAGGTCCACCCCTGGAGATAANGTGAAGGTGGTCCCCCGGACTT
 CCAGGTATAGCTGGACCTCGTGTAGCCCTGGTGAGAGAGGTGAAACCTGGCCCTCCACGA
 CCTGCTGGTTCCCTGGTGTCTGGACAGAAATGGTAAACCTGGNGGTAAAGGAGAAAGA
 GGGGCTCCGGNTGANAAAGCTGAGGGAGCCCTCTGNATTGGCAGGGGCCCAAGACTT
 AGAGGTGGACCTGGCCCCCTGGCCCCGAAGGAGGAAGGGTGTGCTGGTCTCTGGG
 CCACCTGG

16524.2.edit

TCGAGCGGCCGCCCCGGGAGGTCTGGGCCAGGAGGACCAATAGGACCACTAGGACCCCTT
GGGCATCTTCCCTGGACACCATCAGCACCTGGACCGCCTGGTTACCCCTGTCAACCTT
TGGACCAAGGACTTCCAAGACCTCCTTTCTCAGGCATTCTTGAGACCAAGGAGTACCA
NCAGCACCAAGGTGGCCCAGGAGGACCAAGCAGCACCTTCCCTTGGGACCAAGGGGA
CCAGCTCCACCTCTAAGTCTGGGGCCCTGCAATCCAGGAGGCCTCTCACCTTCTC
ACCCGGAGCCCCCTCTTTCT

16526.1.edit

TCGAGCGGCCGCCCCGGCAGGTCCACCGGGATATTGGGGTCTGGCAGGAATGGGAGGC
ATCCAGAACGAGAAGGAGACCATGCAAAGCCTGAACGACCGCCTGGCTTACCTGGAC
AGAGTGAGGAGGCTGGAGACCGACAACCGGAGGCTGGAGAGCAAAATCCGGAGCACCT
GGAGAAGAAGGGACCCCAGGTAGAGACTGGAGGCCATTACTCAAGATCATGAGGACCT
GAGGGCTCANATCTCGCAAATACTGCNGAGAATGCCCG

165-26.2 edit

ATGCGNGGTGCGGGCCGANGACCANCTCTGGCTCATACTTGACTCTAAAGNCNTCACCG
NANTTACGGNCATTGCCAATCTGCACAAACCGATGCGGGCATTGTCGGCANTATTGCGAAG
ATCTGAGGCCCTCAGGNCTCGATGAATTGAAAGTAANGGCTCCAGTCTCTGACCTGGGCTC
CTTCTCTCCAAGTGCTCCCCGATTTCCTCTCCAGCCTCCGGTTCTGGTCTCCAAGNCT
TCTCACTCTGTCAGCAAAAGAGGCCAGGGCGNCGATCAGGGCTTIGCATGGACT

16527.1.edit

1657-2.edir

TCGAGCGGCCGGCCGGCAGGTCTGCCAACACCAAGATTGGCCCCCGCCGCATCCACACA
GTTNGTGTGCGGGGAGGTAACAAGAAATACCGTGCCTGAGGNTGGACGNGGGAAATTTC
TCCTGGGCTCAGAGTGTGTACTCGTAAACAAGGAATCATCGATGTTGTCTACAATGCAT
CTAATACGAGCTGGTGTACCAAGACCCCTGGTGAAGAATTGCATCGTGCTCATNGACA
GCACACCGTACCGACAGTGGGTACCGAAGTCCCACATAGCNCTT

FIG. 15.44A

16528.1.edit

TCGAGCGGCCGCCGGGCAGGTCCACCAACCCAAATTCTTGTGGTATCATGGCAGCCGC
 CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGTCTCCTCCCAGAGA
 AGTGGTCCCTCGGCCCGCCCTGGTGTACAGAGGCTACTATTACTGGCCTGGAACCGGGAA
 ACCGAATATAACAATTATGTCATTGCCCTGAAG

16528.2.edit

AGCGTGNTNCGGCGAGGA TGGGAAGCTCGNCTGTCTTTCTTCCAATCAGGGGCTNN
 NTCTTCTGATTATTCTCAGGGCAANGACATAAATTGTATATTGGNTCCCGGTTCCAGN
 CCAGTAATAGTAGCCTCTGTGACACCAGGGCGGGGCGAGGGACCACTTCTCTGGGAGGA
 GACCCAGGCTCTCATACTTGATGATGAAGCCCGTAATCCTGGCACGTGGCGGCTGCCAT
 GATACCAACCAANGAATTGGGTGTGGTGGACCTGCCCGGGCGGGCGTCGAAAANCCGAA
 TTCTGCAAGAATATCCATCACACTGGCGGGCGNTCGAACCATGCACTNTAAAAGGG
 CCCAAATTCCCCCTATTAGGNGAACCNCAATTAAACAAATTCCACTTGG

16529.1.edit

TCGAGCGGCCGCCGGCAGGTCTCGCGCTCGCACTGGTATGCTGGTCTGTTGGTCCCC
 CGGCCCTCTGGACCTCTGGCCCCCTGGTCTCTCCAGCGCTGGTTTGACTTCAGCTTC
 CTGCCCCACCCACCTCAAGAGAAGGCTCACCGATGGTGGCCGCTACTACCGGGCTGATGAT
 GCCAATGTGGTTCGTGACCGTGACCTCGAGCTGGACACCACCTCAAGAGCCTTGAGCCA
 GCAGAATCGAAAACATTGGAAACCCAGAAGAAGGGCAAGCCCGCAAAGAAAACCCCGCCCC
 ACCTGGCCGNGAACCTCCAAGAAGCTGCCCCACNTCTTGACTGGAAAAAAAAGGGAAAANT
 ACTTGGAAATTGGAC

16529.2.edit

AGCGTGGTCCGGCCGAGGTCCACATCGGCAGGGTCCGGAGCCCTGGCCGCCATACTCGAA
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 TGATGTACCAAGTTCTTCTGGCCACACTGGCTGAGTGGGTACACCCAGGTCTCACCAAGT
 CTCCATGTTGAGAAGACTTTGATGGCAATCCAGGTGAGCCTTGGTTGGGTCAATCCAG
 TACTCTCCACTCTTCCACTCAGAAGTGGCAACATCTGAGGTCAAGGGCAGGGTCCGGGGGG
 GTTCTTGCAGGCTGCCCTCTGGCTCCCGAAATGTTCTNNGAACTTGCTGG

16530.1.edit

AGCGTGGTCGCGGCCGAGGTCCACTAGAGGTCTGTGCCATTGCCAGGCAGAGTCTCTG
 CGTTACAAACTCCTAGGAGGGCTTGCTGTGCCAGGGCTGCTATGGTGTGCTGCCGTCA
 TCATGGAGAGTGCGGCCAAGGCTGCCAGGTTGCTGGTCTGGAAACTCCGAGGAACAGA
 GGGCTAAATCCATGAAGTTGTGGATGCCCTGATGATCCACAGCGGAGACCCCTGTTAACTA
 CTACGTTGACACTTGTGCCACGTGTTGCTCANACANGGTGGCTGGGCATCAAG
 GNG

16530.2.edit

TCGAGCGGCCGCCGGGCAGGTCTGCCAAGGAGACCCCTGTTATGCTGTGGGACTGGCTG
 GGGCATGGCAGGCCCTCTGGCTTCCCACCCCTCTGTTCTGAGATGGGGTGGTGGCAGT
 ATCTCATCTTGGGTTCCACAAATGCTCACGTGGTCAGGCAGGGCTTAGGGCCAATCT
 TACCAAGTTGGTCCCAGGGCAGCATGATCTCACCTTGATGCCAGCACACCCCTGTCTGAG
 CAACACGTGGCGCACAGCAAGTGTCAACGTAAGTTAACAGGGTCTCCGCTGTGGAT
 CATCAGGCCATCCACAAACTCATGGATTAACCCCTGTCCTCGGAG

16531.1.edit

TCGAGCGGCCGCCGGGCAGGTCTTTAGAGGTCTCAAGCTCCACTGTGGAGGTCCCAGG
 AGTGTGGTGGTGGGCACACAGGTCCGATGGGTGAAACCATTGACATAGAGACTGTTCT
 GTCCAGGGTGTAGGGGCCAGCTCTTGATGCCATTGGCAGTTGGCTCAGCTCCCAGTAC
 AGCCGCTCTGTGTTGAGTCCAGGGCTTTGGGTCAAGATGATGGATGCAGATGGCATCCA
 CTCCACTGGGTGCTCCATCTTCTGGACCTGAGAGAGGTCACTGCAGCCAGAGTACAG
 AGGGCCAACACTGGTGTCTTGAATA

16531.2.edit

ACCGTGTGCGGGCCAGGTCTGTACTCCGAGCTAACCAAACGTACCAATGACATTGAAG
 AGCTGGGCCCTACACCCCTGGACAGGAACAGTCTCTATGTCATGGTTTACCCATCAGAG
 CTCTGTGNCCACCACCACTCTGGCACCTCCACAGTGGATTTCAGAACCTCAGGGACT
 CCATCTCCCTCTCCAGCCCCACAAATTATGGCTGCTGGCCCTCTCTGGTACCAATTACCC
 CAACTTCACCATCACCAACCTGCAGTATGGGAGGACATGGGTCAACCTGNCTCCAGGAA
 GTTCAACACCCACA

16532.1.edit

TCGAGCGGCCGCCGGACAGGTCTGGGGGATAGCACCCGGCATATTGGAAATGGATGA
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 GATACTATGGCAGGACGGNTCTGAGNCTGTGGGATAGCTGCCATGAAGTAACCTGAAGGAG
 GTGCTGGCTGGTANGGTTGATTACAGGGTTGGGAACAGCTCGTACACTTGCCATTCTCTG
 CATATACTGGTTAGTGAGGTGAGCCTGGCCCTCTTCTTGT

01_16558.3.edit

AGCGTGGTCGCGGGCGAGGTGAGCCACAGGTGACCGGGCTGAAGCTGGGCTGCTGGNC
CTGCTGGTCTG

02_16558.4.edit

CAGCNGCTCCNACGGGCCTNGGGACCAACAACACCGTTTACCCCTAGGCCCTTGGC
TCCTCTTCTCCTTAGCACCGGTTGACCAGCAGCNCCANCAGGACCAGCAAATCCATTG
GGGCCAGCAGGACCGACCTCACCACTTACCCAGGGCTCCCGAGGACCAGCAGGACCA
CTGAGGACCAGCAGCCCCAGCTTCGCCCCGGTACCTGTGGCTCACCTCGGCCGACCA

03_16535.1.edit

TCGAGCGGTGCCCCGGCAGGTCCACCGGGATAGCCGGGGTCTGGCAGGAATGGGAGGC
ATCCAGAACGAGAAGGGAGACCATGCAAAAGCCTGAACGACCGCCTGGCTTACCTGGAC
AGAGTGAGGAGCCTGGAGACCGANAAACGGAGGCTGGANAGCAAATCCGGGAGCACTT
GGAGAAGAAGGGACCCCAGCTCAAGAGACTGGAGCCATTACTCAAGATCATCGAGGG
CCTGGAGG

04_16535.2.edit

AGCGNCGTGCAGGGCGAGGTCCACCTGTCTCATACTTGACTCTAAAGTCATCACCA
GAGACGGGCATTGTCAATCTGCAGAACCAAGGGCATTGTCCCGAGTATTGCGAAGATCT
GAGCCCTCAGGTCTCGATGATTTGAAGTAATGGCTCCACTCTGTGACCTGGGTCCCTT
CTTCTCCAAGTGCTCCCCGATTGTCTCGCTCCAGGCTCCGGTCTCGGTCTCCAGGCTCCTCA
CTCTGTCCAGGTAAAGAAGGGCCAGGGCGCTGGTCAAGGCTTGCATGGTCTCCTTCTCGTTCT
GGATGCCTCCCATTCTGCCAGACCC

05_16536.1.edit

TCGACCGGGCGCCCCGGCAGGTCAAGAACACACATTGGTCTTAGAGGCCACTGCCTCTGGA
TTCCACCTGTGCTGGGACATCTCCACGGAGTGCAAGAAGGGAAAGCAGGTCAAACGTGCTCA
GATCAGTCAGACTGGCTTCTCAGTTCTCACCTGACCAAGGTCAAGTCTGCAGCCAGAGTA
CAGAGGGCCAACACTGGTGTCTGAACAAGGGCTTGAGCAGACCCCTGCAGAACCTCTTC
CGTGGCTTGAACCTCCTGGAAACCAGGGCTTGCATGTTTCTCATAATGCAAGGTTG
GTGATGG

07_16537.1.edit

AGCGTGGTCGGCCGAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTATGCTCTCGCCGAACCAGACATGCCTTGTCTTGGGTTCTTGC
TGATGTACCAAGTTCTCTGGCCACACTGGCTGAGTGGGTACACCGCAGGTCTCACCA
TCTCCATGTTGCAGAAGACTTGTGGCATCCAGGTTGCAGCCTTGGTGGGTCAATCCA
GTACTCTCCACTCTTCAGTCAGAAGTGGCACATCTTGAGGTACACGGCAGGTGCCGGC
CGGGGTTCTGCGGCTTGCCTCTGGCTCCGGATGTTCTGATCTGCTTGGCTCAGGCTC
TTGAGGGTGGGTGTCCACCTCGAGGTACGGTACCGAACCTGCCGGCGGGCGCTC
GA

08_16537.2.edit

TCGAGCGGTGCCCCGGGCAGGTTCTGTGACCGTGACCTCGAGGTGGACACCACCTCAAG
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CCGCACCTGCCGTGACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGAT
TGACCCCCAACCAAGGCTGCAACCTGGATGCCATCAAAGTCTCTGCAACATGGAGACTGGT
GAGACCTGCGTGTACCCCACTCAGCCCAGTGTGGCCCAGAAGAAACTGGTACATCAGCA
AGGAACCCCAAGGACAAGAGGCATTGCTTGGTTCGGCGAGNAGCATGACCGATGGATT
CCAGTTCGAGTATTGGCGGCCAGGGCTCCGACCCCTGCCATGTGGACCTCGGCCGCG
ACCACCGCT

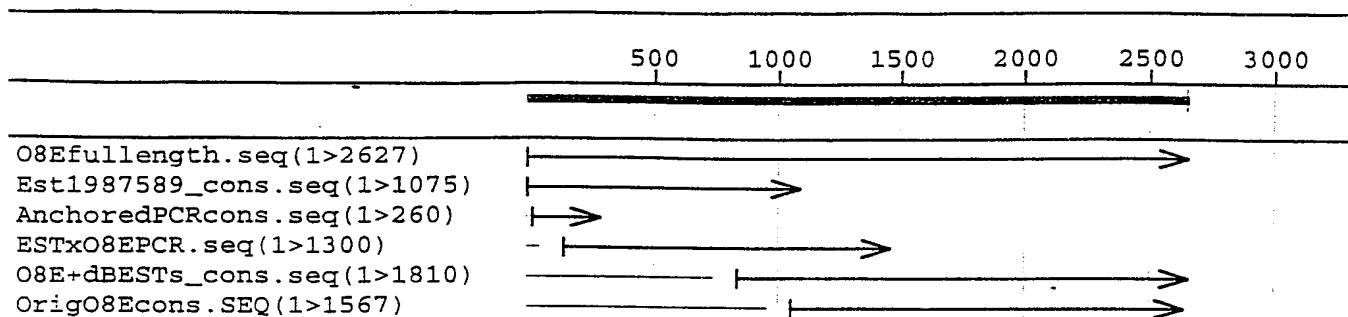


FIG. 16